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August 14, 2012

Reference No. 039611

Mr. Rosauro del Rosario
EPA Project Manager/Coordinator
United States Environmental Protection Agency (USEPA)
Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Dear Mr. del Rosario:

Re: Construction Completion Report / Completion of Remedial Action Report
Himco Site, Elkhart, Indiana (Site)

On behalf of the Performing Settling Defendants, please find attached the Construction Completion Report / Completion of Remedial Action Report for the Himco Site. This Report documents the construction of the Remedial Action at the Site in accordance with the Remedial Design. In accordance with Section XIV of the Consent Decree, the Himco Site Trust requests that the USEPA provide certification of completion of the Remedial Action.

Should you have any questions, please contact me at (519) 884-0510.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Denise Quigley

Denise Gay Quigley

HS/lp/40
Encl.

cc: Doug Petroff, IDEM (two copies)
Karen Oden, USACE (three copies)
Gary Toczylowski, Bayer HealthCare
Tom Lenz, Bayer HealthCare
Alan Van Norman, CRA (electronic)

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FINAL REPORT

CONSTRUCTION COMPLETION REPORT/ COMPLETION OF REMEDIAL ACTION REPORT

HIMCO SITE
ELKHART, INDIANA

Prepared for: Himco Site Trust

Conestoga-Rovers & Associates
651 Colby Drive
Waterloo, Ontario N2V 1C2
Canada

To the best of my knowledge, I certify that the Remedial Action has been completed in full satisfaction of the requirements of the Statement Of Work.

Douglas M Gatrell

Douglas M. Gatrell, P.E.
Indiana PE #PE19800275

Thomas M. Lenz

Thomas M. Lenz, Performing Settling
Defendants Alternate Project Coordinator

DOUGLAS GATRELL
REGISTERED
NO.
PE19800275
STATE OF
INDIANA
PROFESSIONAL ENGINEER

To the best of my knowledge, after thorough investigation, I certify that the information contained in or accompanying this submission is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Thomas M. Lenz

Thomas M. Lenz, Performing Settling Defendants Alternate Project Coordinator

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<u>LIST OF ACRONYMS</u>

2H:1V	2 Horizontal: 1 Vertical
CD	Consent Decree
CDA	Construction Debris Area
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
Closure Criteria	IDEM Residential and Industrial Default Closure Levels
CQA	Construction Quality Assurance
CQAP	Construction Quality Assurance and Performance Standard Verification Plan
CRA	Conestoga-Rovers & Associates
CRA, 2008	Remedial Design Work Plan
CRA, 2010	Final Design Report
DCB	Dichlorobenzene
100% Design Report	100% Final Design Report
FSP	Field Sampling Plan
ft AMSL	feet Above Mean Sea Level
HASP	Health and Safety Plan
HHRA	Human Health Risk Assessment
IDEM	Indiana Department of Environmental Management
IDNR	Indiana Department of Natural Resources
LFG	Landfill Gas
$\mu g/m^3$	micrograms per cubic meter
MHP	Material Handling Plan
mL	Milliliter
NPL	National Priority List
O&M Plan	Operation and Maintenance Plan
OSHA	Occupational Safety and Health Administration
PAHs	Polynuclear Aromatic Hydrocarbons
PCBs	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PPM	Parts per Millions
PVT	Passive Ventilation Trench
PSDs	Performing Settling Defendants

LIST OF ACRONYMS

PSV	Performance Standard Verification
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RA	Remedial Action
RAWP	Remedial Action Work Plan
RC	Remedial Contractor
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RD Work Plan	Remedial Design Work Plan
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROD-A	Amended Record of Decision
SCS	Indiana Soil Conservation Service
SEC Donohue, 1992	Remedial Investigation and Feasibility Study
SGP	Soil Gas Probe
Site	Himco Site
SOW	Statement of Work
SSI	Supplemental Site Investigation
SSI/SCR	Supplemental Site Investigation/Site Characterization Report
SVOC	Semi Volatile Organic Compound
SWM Plan	Surface Water Management Plan
SWPPP	Stormwater Pollution Prevention Plan
TAL	Target analyte list
TCE	Trichloroethene
TCL	Target Compound List
TMB	Trimethylbenzene
TSDF	Treatment Storage and Disposal Facility
USACE	United States Army Corps of Engineers
USACE, 1996	Final Design Analysis Report

LIST OF ACRONYMS

USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USEPA, 2002	USEPA's Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils
USCS	Unified Soil Classification System
VAS	Vertical Aquifer Sampling
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Performing Settling Defendants (PSDs), collectively known as the Himco Site Trust, retained Conestoga-Rovers & Associates (CRA) to prepare this Construction Completion Report (Report) for the Himco Site (Site) in Elkhart, Indiana. CRA prepared the Report in accordance with Section XIV, Paragraph 50 of the 2007 Consent Decree (CD) for Remedial Design and Remedial Action (RD/RA). This Report also satisfies Section IV, Item 15 and Item 16, which require both a construction completion report and a completion of remedial action report.

1.1 GENERAL

The Site is a closed landfill located at the intersection of County Road 10 and John Weaver Parkway (former Nappanee Street Extension) in Elkhart County, Indiana. The Site covers approximately 100 acres in the Northeast ¼ of Section 36, Township 38 North, Range 4 East in Cleveland Township, of which approximately 65 acres is the landfill proper. The landfill accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976.

The Site location is shown on Figure 1.1. A Site plan is provided on Figure 1.2.

According to the Remedial Investigation and Feasibility Study (RI/FS) (SEC Donohue, 1992), the Site consists of two major areas: the calcium sulfate-covered landfill and the 4-acre construction debris area (CDA). The CDA was subdivided into seven residential properties and one commercial property parcel. The commercial property is not currently occupied or being used for any purpose. The CDA and its boundaries were defined primarily from 13 test trenches excavated in 1991 during the second phase of field studies for the Remedial Investigation (RI).

From 1974 to 1992, a number of environmental investigations were completed at the Site including a RI/FS in 1989-1992 by SEC Donohue. Before the implementation of the RI/FS, the United States Environmental Protection Agency (USEPA) added the Site to the National Priorities List (NPL) on February 21, 1990. Upon completion of the RI/FS, the USEPA issued a Record of Decision (ROD), executed on September 30, 1993, which identified the selected RA for the Site. Subsequent to the ROD, additional environmental investigations were completed. An Amended ROD (ROD-A) was issued on September 15, 2004. The ROD-A provided for the remedial actions (RA) for the landfill cover, CDA soil removal, groundwater, and air components of the RD/RA for the Site. The RD/RA is being completed pursuant to the CD, which became effective on November 27, 2007. The lead Agency for the Site is USEPA Region 5. Indiana Department of Environmental Management (IDEM) is the support Agency.

Pre-design investigations commenced at the Site in 2008. Groundwater monitoring commenced in 2008 and is ongoing. In accordance with the CD, remedial design was completed in three stages (60%, 90%, and 100%). USEPA issued approval of the Pre-Design Investigation/100% Final Design Report (CRA, 2010) (hereafter referred to as the "Final Design Report") and notice to proceed with the Remedial Action Work Plan (RAWP) on July 21, 2010.

1.2 REPORT ORGANIZATION

This Report is organized as follows:

- Section 2.0 provides background information on the Site
- Section 3.0 describes the overall strategy for the RA, including the problem statement and a description of the remedial design and construction activities, including changes made to the design as construction proceeded
- Section 4.0 describes residential well abandonments and supply of municipal water to residents east of the Site
- Section 5.0 describes Site preparation activities completed at the onset of remedial construction
- Section 6.0 describes waste excavation and consolidation
- Section 7.0 describes the construction of the soil cover
- Section 8.0 describes surface water management
- Section 9.0 describes construction of the passive ventilation trench (PVT) and soil gas probes abandonment and installation
- Section 10.0 describes construction of ancillary features on Site, including Site access road
- Section 11.0 describes the meeting and inspections completed during the remedial construction

- Section 12.0 describes the operation and maintenance activities planned for the remedial action

The Record Drawings for the RA construction and the water main extension construction are provided with this report.

2.0 SITE BACKGROUND AND SETTING

2.1 SITE DESCRIPTION

The Site is a closed landfill located at the intersection of County Road 10 and John Weaver Parkway in Cleveland Township, Elkhart County, Indiana. According to the ROD-A, the Site accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. Prior to the RA, the topography of the landfill was varied with two high points located on the northwest and east sides of the Site at an approximate elevation of 772 feet above mean sea level (ft AMSL). The elevation of perimeter of the landfill is approximately 761 ft AMSL. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976. The CDA bordering the southern perimeter of the landfill consisted of construction rubble mixed with non-native soil. Numerous small piles of rubble concrete, asphalt, and metal debris were scattered throughout the area. The calcium sulfate layer found at the landfill was not present in the CDA.

According to Supplemental Site Investigations/Site Characterization Report (SSI/SCR) (USEPA, 2002), the landfill and surrounding areas were initially marsh and grassland. No liner, leachate collection, or gas recovery system was constructed as part of the landfill. Refuse was placed at ground surface across the Site, with exception of trench filling in the eastern area of the Site. In this area, the Site operator excavated five trenches 10 to 15 feet (ft) deep, the width of a truck and 30 ft long. Paper refuse was reportedly dumped in the trenches and burned. The exact locations of these trenches within the landfill are unknown. Approximately two thirds of the waste in the landfill is calcium sulfate (SEC Donohue, 1992). Other wastes accepted at the landfill included demolition/construction debris, household refuse, and industrial and hospital wastes. The landfill had no specifically-defined borrow source, but obtained sandy soil for daily cover from an abandoned gravel pit to the north, ponded areas to the west, and essentially anywhere around the perimeter of the Site where sand was available.

The abandoned gravel pit north of the Site, commonly referred to as the Quarry Pond, is filled with water. The two other smaller ponds on the west side of the Site are commonly referred to as the L Pond and the Little Pond. The typical surface water elevation ranged from 754.5 to 755.3 ft AMSL in November 2008.

The waste on Site is in contact with the water table. The RI/FS states that residents near the Site reported complaints of color, taste, and odor problems in shallow water supply wells as early as 1974. Deeper potable water supply wells were installed for some residents in the 1970s. The USEPA Emergency and Response Branch sampled these wells in late April 1990. Elevated concentrations of sodium in samples from these deeper water supply wells eventually led to the USEPA's requirement to supply municipal water to the residents south of the Site in 1990.

2.2 SUMMARY OF INVESTIGATIONS

On behalf of the USEPA, SEC Donohue completed the RI in 1991-1992 to characterize the contamination in soil samples collected from the landfill cover and areas next to the cover. SEC Donohue also sampled soil in the CDA during the 1998 SSI to characterize the nature of soil contamination.

The first attempt at defining the limit of waste occurred in 1992 using a combination of geophysical surveys, test pit and soil boring observations, and examination of aerial photos (SEC Donohue, 1992). The limit of waste of the landfill was further defined in 1996 using information contained in the Final Design Analysis Report (United States Army Corps of Engineers [USACE], 1996).

The USACE completed two supplemental soil gas investigations that were performed between 1998 and 1999. The 1998 soil gas investigation concentrated primarily on the area south of the landfill to County Road 10, with limited investigations east of the landfill towards John Weaver Parkway.

In order to further delineate and understand the extent of conditions on-Site, CRA completed a pre-design investigation in accordance with the RD Work Plan (CRA, 2008). The pre-design investigation was designed to delineate the limits of the landfill and characterize on-Site cover soil, where present, for thickness, nutrients, vegetation, and grain size. CRA also sampled soil in the CDA, landfill gas (LFG)/soil gas, and groundwater to supplement existing information and aid in the development of an appropriate remedy. The remedy addresses the CDA, the main landfill, and will prevent off-Site migration of LFG/soil gas present at the Site.

The pre-design investigation consisted of advancing 246 landfill cover soil borings, excavating 17 test trenches and five test pits, completing vertical aquifer sampling (VAS) at eight locations, installing 29 soil gas probes, collecting 74 soil samples (including quality assurance/quality control [QA/QC] samples), collecting 62 groundwater samples from monitoring wells, collecting 121 samples from VAS boreholes, and collecting 61 soil gas samples (including QA/QC samples).

The landfill limit delineation determined that the actual limit of waste in the west, in the northeast sides of the landfill and the southeast part of the CDA varied significantly from the 1996 landfill limit.

The 2009 landfill limit of waste line, as defined by CRA, was produced using historic data, the results of the test trenches, and other data collected during the pre-design investigation.

The soil cover investigation determined the following:

- The thickness of soil cover at the investigated soil boring locations varied from 0 to 2 ft, the average thickness of cover at the boring locations was approximately 0.8 ft, and approximately one third of the boring locations at the Site had 0 to 0.4 ft of existing soil cover
- The Unified Soil Classification System (USCS) soil classifications for samples collected from the landfill soil cover were a poorly graded sand, gravelly sand, or silty sand
- The results of the analysis were not conclusive as to the ability of the landfill soil cover to grow vegetation based on criteria provided from A & L Great Lakes Laboratories, Inc., and the amount of coverable cover soil was too small to make it cost effective for reuse
- Of the 21 soil sample locations where samples contained volatile organic compounds (VOC) detections, none of the sample concentrations were greater than the IDEM Residential and Industrial Default Closure Levels (closure criteria)

The December 2008 soil samples collected within the CDA contained several polynuclear aromatic hydrocarbons (PAHs) in both surface and subsurface soil samples, and two semi-volatile organic compounds (SVOCs) (bis[2-Ethylhexyl]phthalate and dibenzofuran). Eighteen of the 23 target analyte list (TAL) metals were detected at least once. Arsenic was detected at concentrations greater than the closure criteria in soil samples from the CDA. Lead was detected at concentrations less than the closure criteria in soil samples collected from the CDA. The December 2008 soil samples illustrated that criteria exceedances were detected in samples from two locations adjacent to the landfill and on residential properties. Soil samples collected at one location in the southern portion of the landfill also contained parameter concentrations at concentrations exceeding the closure criteria.

Concentrations of seven VOCs (1,2,4-trimethylbenzene [TMB], 1,3,5-TMB, 1,4-DCB, benzene, perchloroethylene [PCE], trichloroethylene [TCE] and vinyl chloride) in LFG/soil gas samples collected at two locations on the southeast corner of the landfill exceeded the IDEM Indoor Air Criteria.

A detailed summary of analytical data collected historically at the Site is provided in the RD Work Plan (CRA, 2008) and in the Final Design Report (CRA, 2010).

2.3 SITE SETTING

The Site is bordered to the north by the Quarry Pond and agricultural land; to the east by John Weaver Parkway and beyond by residential properties; to the south by residential properties and County Road 10; and to the west by undeveloped land and agricultural properties.

The Site is currently fenced. Locked access gates are present at the southeast corner of the Site and near the southwestern corner of the Site. A man gate is located on the west side of the Site.

3.0 OVERALL STRATEGY AND DESIGN

3.1 PROBLEM

The landfill accepted waste including household refuse, construction rubble, medical waste, and calcium sulfate between 1960 and 1976. The landfill was closed and covered with a 1-foot layer of sand overlying a layer of calcium sulfate in 1976.

According to the RI/FS (SEC Donohue, 1992), the Site consists of two major areas: the calcium sulfate-covered landfill and the 4-acre CDA. The CDA includes seven residential properties and one commercial property parcel. The commercial property is not currently occupied. The CDA and its boundaries were defined primarily from 13 test trenches excavated in 1991 during the second phase of field studies for the RI.

The results of the human health risk assessment (HHRA) indicate a potential for risk to age-adjusted residents, child residents, and construction workers if exposed to the soil within the CDA or groundwater migrating from the Site through inhalation, ingestion and dermal contact pathways. Primarily, the exposure compounds include metals such as antimony, arsenic, copper, manganese, and VOCs such as benzene and 1,2-dichloropropane. As a result of the potential risk, areas of exposed waste were covered and a passive ventilation trench was installed to intercept gases migrating from the landfill and provide a preferential pathway to be vented to the air. The landfill cap will minimize the potential threat to users and trespassers on Site while the landfill gas collection system will minimize receptor exposure to gases departing from the Site.

3.2 REMEDY

On behalf of the PSDs, CRA completed a pre-design investigation in accordance with the RD Work Plan (CRA, 2008). The pre-design investigation is summarized in Section 2.2 of this Report. The pre-design investigation data were used to design the remedy, as summarized in the Final Design Report (CRA, 2010).

The remedy included:

1. Excavation and relocation of soil and debris within the CDA
2. Backfilling of CDA
3. Consolidation of waste and shaping of landfill

4. Construction of landfill cover
5. Construction of landfill gas PVT
6. Installation of soil gas probes
7. Construction of Site access road and ancillary features

The PSDs retained the construction division of CRA to construct the remedy and act as Remedial Contractor (RC). CRA commenced remedial construction in March 2011, and completed construction in June 2012, with a break for winter from December 2011 to April 2012. A photographic log of the RA construction activities is provided as Appendix A.

3.3 DESIGN CHANGES

Following USEPA approval of the RD and throughout remedial construction, CRA proposed several modifications to the RD to improve the remedy or adapt it to better suit Site conditions. The design changes reviewed and approved by USEPA included:

- Modification of soil specification
- Modifications of the Construction Quality Assurance and Performance Standard Verification Plan (CQAP) Tables 3.1 and 4.1.
- Approval of analytical detection limits greater than the IDEM Risk Integrated System of Closure (RISC) default residential soil concentration level
- Reduction in real-time air monitoring duration
- Cessation of air monitoring program during clean work activities
- Waste settlement and revised contour design (discussed in Section 7.1)

CRA also adapted the design of the access roads to match existing Site conditions. Each of these design changes are discussed in this Report. The as-built details are recorded on the Record Drawings, attached to this Report.

4.0 RESIDENTIAL WELL ABANDONMENT AND MUNICIPAL WATER SUPPLY

In accordance with Section II, Item 4.3.1 of the SOW, the PSDs abandoned 40 private water supply wells and connected 37 residents to municipal water supply. The work at residences east of the Site was completed between August 2009 and December 2009. Residential wells south of the Site were abandoned in July 2012. The work was completed in accordance with the Remedial Design Work Plan - Residential Well Abandonment and Municipal Water Supply (Water Supply Work Plan) (CRA, 2008).

4.1 RESIDENTIAL WELL ABANDONMENT

The SOW listed 46 residences as requiring well abandonment. In accordance with the Water Supply Work Plan, CRA searched the Indiana Department of Natural Resources (IDNR) database to obtain private well records, where available. In most cases, and as stated in the Water Supply Work Plan, CRA inspected the property to assess the depth and location of the supply well, and gathered information on the pump and/or piping to be disconnected.

Table 4.1 presents the list of residential water supply wells abandoned by the PSDs per the SOW. J.W. Bowles Well Drilling abandoned 37 residential wells east of the Site in December 2009, and Stearns Drilling abandoned three wells south of the Site in July 2012. The approximate location of the abandoned wells is shown on Figure 4.1. The type and depth of well found at each location is summarized in Table 4.1.

The residences south of the Site along County Road 10 have been connected to municipal water supply since the 1990s. The status of the private water wells on those properties was not known, and although historic reports for the Site listed up to nine wells south of the Site, some of these wells may have been abandoned or destroyed. In June 2012, CRA inspected the County Road 10 properties listed in the SOW for which the PSDs had access, and located three water supply wells. Stearns Drilling abandoned two residential wells at 28279 County Road 10 and one well at 28399 County Road 10 in July 2012.

As communicated to USEPA throughout the project, the PSDs were unsuccessful in securing access to several properties listed in the SOW despite numerous attempts and financial incentives offered between 2007 and 2012. These properties include:

- 54161 Westwood Drive
- 27947 Westwood Drive
- 28369 County Road 10

The PSDs did not have written access to two abandoned properties (28279 County Road 10 and 28399 County Road 10). The PSDs proceeded with inspections of the property (outside of the buildings) and well abandonment in order to satisfy the requirements of the SOW.

Prior to the well abandonments, CRA measured the groundwater elevation and the total depth of the well. All residential well abandonments were completed in accordance with Indiana Administrative Code, 312 IAC 13, Rule 10.

The general sequence for well abandonment was as follows:

- Locate the well
- Remove the pumping equipment
- Chlorinate the well
- Backfill the well with neat cement, bentonite slurry, or pelletized bentonite
- Cut the well casing off 2 ft bgs
- Cap the well if possible
- Install a cement plug over the well
- Restore the ground surface at the well
- File a well abandonment report with the IDNR

Wastes, including pumps, drop pipes, and other equipment in the well, were removed from each property unless the resident requested that the material was to be left at the property.

Well abandonment logs are provided in Appendix B. A photographic log of the well abandonments of 28279 County Road 10 and 28399 County Road 10 is also provided in Appendix B.

4.2 WATER MAIN EXTENSION

In accordance with Section II, Item 4.3.2, of the SOW, the PSDs constructed a water main extension to supply municipal water to residents on Westwood Drive and Northwood Drive in Elkhart, Indiana. The PSDs obtained access agreements for 37 out of 39 residents. As summarized in Table 4.2, residents of 54161 Westwood Drive and 27947 Westwood Drive refused the municipal water, and did not sign the access agreement, despite financial incentives offered by the PSDs. The PSDs did not connect these residences to the water main extension.

CRA designed the water main extension and received City of Elkhart approval of the design. The Himco Site Trust retained John Boettcher Sewer & Excavating (JBSE) to construct the water main extension between August 2009 and December 2009. The water main extension was constructed on Plainfield Drive, Westwood Drive, Midland Drive, Northwood Drive and Highland Boulevard and is shown on Figure 4.2 and in the attached as-built drawings.

The water main extension consisted of:

- 4,186 ft of 12-inch ductile iron pipe
- 852 ft of 8-inch ductile iron pipe
- Five hydrants
- 37 taps and connections

The PSDs dedicated the water main extension to the City of Elkhart, and was accepted by the City of Elkhart on April 6, 2010. The Dedication and Acceptance of the water main extension is provided in Appendix C.

5.0 SITE PREPARATION

5.1 HEALTH AND SAFETY

CRA implemented the Health and Safety Plan (HASP) in Appendix R of the Final Design Report during remedial construction activities. The HASP was amended, as appropriate, during remedial construction. The HASP provided specific guidelines and procedures for the protection of personnel performing remedial construction activities.

The HASP was developed in accordance with applicable standards and defined the following:

- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal protective equipment
- Personal hygiene
- Decontamination for personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning
- Logs, reports and record keeping

CRA provided a Site-specific HASP orientation to Site workers and visitors. CRA maintained daily sign-in sheets and health and safety records on Site during construction. CRA implemented the Air Monitoring Program (AMP) in accordance with the HASP when excavation commenced on Site. The AMP is described in Section 6.1 of this Report.

5.2 PERMITS

CRA obtained the following registrations and permits from the City of Elkhart and Elkhart County:

- Registered Excavation Contractor with the City of Elkhart, Indiana
- Excavation Permit for water meter installation with the City of Elkhart Engineering
- Road Restriction Permit with the City of Elkhart Engineering
- Stormwater Pollution Prevention Plan (SWPPP) with Elkhart County

5.3 SITE CLEARING AND SURFACE WASTE REMOVAL

CRA commenced Site clearing and Site preparation on March 7, 2011. CRA cleared and grubbed trees and vegetation within the footprint of the landfill. Large diameter trees outside of the RA construction area and along the perimeter of the landfill were left in place. As requested by USACE, CRA and USACE walked the Site in March 2011 in advance of clearing any large trees to confirm that there was no evidence of nesting raptors in the areas to be cleared.

In accordance with the Final Design Report, CRA transported materials unsuitable for placement under the soil cover off Site for disposal. Three 30-cubic-yard roll-off boxes of large appliances (refrigerators, stoves, washers, and dryers) were shipped off Site to OmniSource for recycling and disposal. CRA shipped 730 passenger car tires, 47 truck tires and 2 oversize tires to Deerpath Recyclers for recycling and/or disposal. CRA disposed of 34.21 tons of non-hazardous construction and demolition debris and municipal trash that could not be compacted, such as furniture cushions and foam rubber, at Waste Management Earthmovers Landfill.

CRA completed clearing and grubbing activities on Site in April 2011. The City of Elkhart requested that the wood chips generated from tree removal be donated to the City for use on City properties, rather than on Site. On April 5, 2011, USEPA and USACE approved this request. CRA shipped approximately 6,000 cubic yards (yd^3) of wood chips off Site to the City of Elkhart's storage yard.

During Site clearing activities on March 9, 2011, CRA uncovered metal debris that was suspected asbestos containing material (ACM). The PSDs sampled the debris and confirmed that it contained ACM. CRA retained Diamond Environmental Services Inc. (Diamond) to remove and dispose of the ACM. Diamond is an IDEM certified Asbestos Contractor in accordance with Title 326 Air Pollution Control Board of the Indiana Administrative Code (IAC) Article 18 Asbestos Management (326 IAC 18). Diamond removed approximately 333 yd^3 of ACM from the Site between May 3 and May 16, 2011. The ACM was transported off Site for disposal by Industrial Disposal & Recycling at the Elkhart County Landfill in Elkhart, Indiana. The ACM sampling report and waste profiles are presented in Appendix D.

6.0 WASTE EXCAVATION AND CONSOLIDATION

During the pre-design investigation field activities, CRA advanced boreholes and excavated test trenches to determine the soil cover thickness and existing edge of waste. The landfill waste footprint covered approximately 65 acres. In order to have adequate room for the final cover system, as well as ancillary features around the perimeter, waste was excavated from five areas on Site in accordance with the RD. The five waste excavation areas are shown on Drawing No. 3. CRA excavated 79,250 yd^3 of waste from the five areas and relocated it to create the final waste layer in accordance with the RD. The approximate area of the consolidated waste is 50 acres. The excavation areas are described further, below.

6.1 PERIMETER AMBIENT AIR MONITORING

CRA completed perimeter air monitoring and sampling in accordance with the AMP in the HASP. The intent of the AMP was to ensure that dust and vapors did not migrate off Site at concentrations that could potentially impact off-Site receptors.

The long-term air monitoring program in the HASP specified that air monitoring at the perimeter of the Site shall be over a 24-hour period. CRA requested that USEPA approve long term monitoring during the active excavation period, which represents the worst case scenario for potential off-Site migration of VOCs or dust. USEPA approved this modification by email on April 21, 2011.

As described in the AMP, perimeter air monitoring and sampling stations were set up at each side of the Site perimeter (i.e., North, South, East, and West) and are shown on Figure 6.1.

CRA completed real-time air monitoring of undifferentiated VOCs and particulate matter less than 10 microns in diameter (PM10). Real-time monitoring was completed during the first week of each perimeter excavation, landfill regrading activities, placement of the rooting zone layer and during intrusive waste excavation for the PVT. CRA inspected the real-time monitoring equipment throughout the day to ensure proper operation of equipment and to troubleshoot or repair the equipment, when necessary. The real-time air monitoring equipment was exposed to environmental conditions (i.e., wet weather, humidity, etc.) and normal wear and tear from repetitive use of the equipment. This resulted in occasional, short-term interruption to real-time air monitoring data collection.

CRA reviewed real-time monitoring data from the work area and compared the data to the action levels in the AMP. Action levels set out in the AMP were not exceeded during perimeter air monitoring at any point during remedial construction.

CRA collected perimeter air samples for laboratory analysis during the first week of the excavation work at the North (Northwest & Northeast), West, CDA and Southeast excavations. The samples were analyzed for Target Compound List (TCL) VOCs, TCL SVOCs, and TAL metals. None of the air samples contained analytes at concentrations that exceeded the criteria set out in Table 6.7 of the AMP. The monitoring and analytical data are presented in Appendix E.

During the November 2011 progress meeting, CRA requested that the perimeter AMP be terminated. The AMP was designed to be protective of on-Site workers and off-Site receptors during waste excavation and soil import activities. There were no exceedances the AMP action levels during the construction phase in 2011. As approved by USEPA on November 8, 2011, CRA did not resume the AMP in spring 2012 since the waste excavation work was complete.

6.2 SOUTH EXCAVATION AREA/CDA

On April 28, 2011, CRA commenced clearing activities on residential properties within the CDA, including removal of perimeter fencing and the residents' own debris. CRA also relocated barns, sheds, and other items stored within the limits of the excavation area. CRA cleared the trees within the CDA area in May 2011. As of June 2011, four of five residents of the occupied properties had signed the access agreement. On June 27, 2011, CRA commenced excavation activities in the CDA, and consolidated the excavated materials on the landfill footprint. The PSDs negotiated at length with the resident at 28369 County Road 10 (Rumfelt) and obtained limited access to the property to excavate impacted soil and debris in September 2011. CRA completed the CDA excavation and backfilling activities on October 5, 2011.

Rather than excavate in an iterative process that would prolong the inconvenience to the residents of the properties within the CDA, the PSDs elected to excavate soil and debris in the CDA to a depth of 6 ft bgs. As shown on Figure 6.2, construction debris was observed south and east of the anticipated limit of excavation as defined during the pre-design investigation. Excavation activities continued southward and eastward until there was no visible evidence of debris or until CRA reached the landfill limit or southern property line. Waste left in place south of the southern property line is discussed further in Section 6.2.1.

CRA collected 17 confirmatory samples at 6 ft bgs on a 100-foot grid. A minimum of one sample was collected from each property, as shown on Figure 6.2 and summarized in Table 6.1. One confirmatory soil sample was collected on October 5, 2011 after ultimately obtaining access from the final resident of the CDA. The soil samples were analyzed for TAL metals, TCL VOCs, and TCL SVOCs. The analytical results are summarized in Table 6.2, and the analytical laboratory reports are present in Appendix E.

Following excavation and sample collection in the CDA, CRA backfilled the excavation with clean imported fill and topsoil, and seeded the area. On behalf of the PSDs, CRA also restored or replaced barns, fences, and other improvements to the satisfaction of each property owner.

6.2.1 BRICK LAYER IN CDA EXTENDING SOUTH OF PROPERTY LINE

As shown on Drawing No. 3 and Figure 6.2, the CDA waste extended east and south of the anticipated limits of the CDA as defined by historic data and the pre-design investigation. A thin (1 foot thick or less) layer of bricks extends south of the property line into the right-of-way for County Road 10. The right-of-way contains active buried and overhead utilities that precluded safe excavation of the bricks. The brick layer is covered with 2 ft or more of existing cover soil that prevents human contact with the bricks. As discussed with the USEPA, CRA collected samples to characterize the existing soil cover in August 2011 and confirm that no further action was required to address the bricks.

As summarized in a CRA memo dated September 22, 2011 (see Appendix F), CRA collected three soil samples (SO-BRICKS-081011, SO-10EAST-08252011, and SO-10WEST-082511) over a 20 foot area in the right-of-way. The samples were collected from soil overlying the bricks, approximately 12 inches bgs. The samples were collected on August 10 and August 25, 2011. CRA also collected two background samples (SO-100EAST-081011 and SO-100WEST-081011) approximately 100 ft east and west of sample SO-BRICKS-081011 to determine if the soil covering the bricks was different from the other existing soil in the right-of-way. Sample locations are shown on Figure 6.2. Soil samples were analyzed for TCL VOCs, TCL -SVOCs, TAL metals, and moisture content. The analytical results are presented in Appendix F.

CRA compared the soil data from the soil cover samples to the background sample data. There are no existing applicable criteria that apply to soil in the road right-of-way. CRA also compared the data to the IDEM RISC Default Closure Levels for both residential and industrial land use for discussion purposes.

The analytical data show that:

- The concentrations of VOCs, SVOCs, and metals in the samples collected from soil cover over the bricks are very similar to those in the background soil samples collected outside of the area of bricks.
- No VOCs or SVOCs were detected in any of the samples at concentrations greater than the RISC Default Closure Levels for both residential and industrial land uses.
- Arsenic was the only parameter detected at a concentration greater than the background samples or IDEM RISC Default Closure Levels. Arsenic was detected in one of the three soil cover samples at a concentration of 10 milligrams per kilogram (mg/kg), which is slightly greater than the IDEM RISC Default Closure levels for residential properties (3.9 mg/kg) and industrial properties (5.8 mg/kg). The background samples contained 4.3 mg/kg (east) and 3.3 mg/kg (west) of arsenic. The concentration of arsenic in the eastern background sample also exceeded the IDEM RISC Default Closure Level for residential land use.

As discussed with USEPA and IDEM during the monthly Progress Meeting on September 14, 2011 and as summarized in CRA's September 22, 2011 memo, the IDEM RISC Default Closure Levels are intended for residential and industrial land use, and are overly conservative when applied to a road right-of-way. Although arsenic has been detected in historic soil samples on Site, it is naturally occurring. The maximum detected concentration of arsenic in the soil cover samples is only slightly greater than the background value for arsenic (7.5 mg/kg) for Indiana as listed in Appendix A Background Soil Concentration Database of Attachment 1-4 Guidance for Developing Ecological Soil Screening Levels, November 2003 and revised in July 2007.

CRA calculated risk based criteria (RBC) to confirm that the maximum detected concentration of arsenic in the soil does not pose an unacceptable risk to human health. CRA calculated RBC for likely exposure scenarios for the right-of-way, including an adolescent trespasser and a construction worker completing infrequent maintenance and/or repairs in the road right-of-way. For both scenarios, CRA considered exposure through oral, dermal and inhalation pathways to evaluate potential risk. As summarized in CRA's September 22, 2011 memo, the calculated RBCs for arsenic for the adolescent trespasser and the construction worker scenarios are 96 mg/kg and 490 mg/kg, respectively. These calculated RBCs are significantly greater than the maximum arsenic concentration detected in the characterizations samples (10 mg/kg).

Based on the data collected and the above evaluation, the existing soil cover over the brick layer south of the CDA is sufficient to prevent contact with the bricks, and is of a quality that is generally consistent with soil in the vicinity of the Site. IDEM indicated that the concentrations of arsenic detected in the soil samples from the right-of-way were not unusual for the area, and IDEM was not concerned about the concentrations detected. The risk associated with excavating the brick layer in the right-of-way for County Road 10 was significantly greater than any benefit obtained by relocating the bricks to the landfill. In a September 28, 2011 email, USEPA agreed that leaving the bricks in place was acceptable and no further action was required.

6.3 SOUTHEAST PERIMETER EXCAVATION ALONG JOHN WEAVER PARKWAY

As shown on Drawing No. 3, waste material along the southeastern portion of the Site extended off Site and into the right-of-way for John Weaver Parkway. The waste in the southeast excavation was 6 ft or more thick, with at least 4 ft of calcium sulfate overlying the landfill waste. In August 2011, CRA filed a Notice of Road Restriction with the City of Elkhart and obtained City approval to complete investigative activities on the southbound lane easement of John Weaver Parkway. On August 22, 2011, CRA closed the south-bound lane of John Weaver Parkway, and set up temporary fencing to secure the work area. On August 23, 2011, Bloodhound Underground (Bloodhound) performed vacuum extraction investigations at 15 locations along the right-of-way to define the limit of waste. CRA then completed five test trenches and confirmed that the waste extended approximately 5 to 8 ft east of eastern property line.

CRA initiated clearing and grubbing on August 26, 2011 to facilitate excavation activities along the right-of-way. CRA excavated approximately 3,800 yd^3 of waste from the right-of-way between September 6 and 9, 2011 and relocated it to a location within the RD landfill limits. CRA backfilled the excavation with common fill, 12 inches of rooting zone material, and 6 inches of topsoil. CRA re-installed the Site perimeter fence and planted 26 trees in the right-of-way in accordance with the City's restoration guidelines.

In accordance with the Final Design Report, CRA determined the lateral extent of the excavation based on field observations and test trenches and visually confirmed that all waste materials had been excavated in the southeast excavation. As discussed with the USEPA in the September 2011 Construction Progress Meeting, confirmatory soil samples in the southeast excavation were not required in accordance with the excavation procedures for the perimeter excavations as outlined in the Final Design Report.

6.4 LANDFILL WATER MANAGEMENT

Groundwater was encountered at approximately 5 to 6 ft bgs in the CDA and at approximately 8 to 10 ft bgs in the southeast excavation. CRA collected a groundwater/leachate sample from a test pit in the southeast excavation on March 30, 2011. The groundwater/leachate sample was analyzed for TCL SVOCs, TCL VOCs, TAL metals, and selected general chemistry parameters. CRA submitted analytical data for the leachate characterization sample to the USEPA on May 5, 2011, in accordance with the Final Design Report (see Appendix E).

CRA constructed an infiltration gallery for groundwater that interfered with excavation activities. The infiltration gallery was approximately 20 ft by 60 ft, and 2 to 6 ft deep, as shown on Drawing No. 2. The groundwater was pumped into the gallery at a flow rate that avoided free standing liquid. Temporary berms were constructed immediately adjacent to the infiltration gallery for additional containment and erosion control. CRA relocated the infiltration in July 2011 to accommodate Site activities. The second infiltration gallery was approximately 300 ft east of the first infiltration gallery.

CRA attempted to quantify groundwater that was recirculated back into the landfill, but experienced difficulties with chronic fouling of the flow metering equipment. At times the flow rates were too low for the flow meter to accurately measure. CRA estimates that the volume of groundwater pumped to the infiltration gallery was on the order of 500,000 to 800,000 gallons.

7.0 SOIL COVER SYSTEM CONSTRUCTION

The landfill cover consists of (from bottom to top):

1. Minimum of a 12-inch rooting zone layer
2. Minimum of a 6-inch topsoil layer

Upon completion of relocation of waste from the five perimeter excavation areas, CRA shaped the landfill surface in accordance with Drawing No. 4 of the revised Final Design. This included excavation of a significant volume of waste from the northern portion of the Site, and relocation of the waste to the southern portion of the Site. After waste excavations were completed, side slopes were graded at 6 percent from the revised limit of waste and the top slope was graded at 2 percent. The final contours were prepared to the same slope as the waste relocation contours over the landfill surface.

The excavated materials from the perimeter of the Site were located into low-lying areas within the landfill and subsequently covered with common fill. Drawing No. 13 presents the cut/fill areas for the Site.

7.1 REVISED CONTOUR DESIGN AND SETTLEMENT

Section 5.4 of the Final Design Report allows the PSDs to modify the final contours to minimize the volume of clean imported fill to the Site while maintaining the minimum side slopes for the final landfill cover. In June 2011, CRA revised the elevation and contours for the final landfill cover to reduce the volume of imported fill by approximately 60,000 yd^3. CRA reviewed the revised design drawings with USACE representatives in May 2011, who concurred with CRA's approach. The reduced quantities of imported fill material also reduced the volume of truck traffic on City and County streets during the construction period.

In a June 2, 2012 email, USEPA concurred that such changes were allowable and that no further approvals were required.

The final landfill contours are shown on Drawing No. 5.

Based on QA/QC survey data, CRA observed settlement following placement of the rooting zone layer on the graded waste layer on the western portion of the landfill. CRA installed settlement plates to monitor potential settling of the soil layers. In some areas, where 12 inches or greater of rooting zone material had been placed and verified, the landfill settlement meant that the final elevation of the cover would not equal the final elevations specified on the RD drawings. CRA proposed to monitor the settlement by installing survey stakes on a 50-foot-by-50-foot grid to monitor the thickness of the rooting zone and topsoil layers. An independent survey certification was performed to verify that required soil thickness was achieved. Survey stakes were installed with a minimum of two stakes per acre, or as appropriate based on field conditions. Settlement plates were installed to confirm and measure soil layer thickness. In an August 24, 2011 email, USEPA approved CRA's approach to monitor the soil settlement and to modify the design contours. CRA also reviewed the stormwater drainage berm design to ensure that the stormwater drainage patterns were not affected by settlement.

7.2 CONSTRUCTION QUALITY ASSURANCE/ QUALITY CONTROL

In accordance with Appendix Q Construction Quality Assurance and Performance Standard Verification Plan of the Final Design Report, CRA completed QA/QC inspections of the RA construction activities. QA/QC activities consisted of reviewing of subcontractors' submittals for consistence with the Design Specifications, routine inspections, and testing of construction materials.

CRA analyzed samples of the imported common fill, rooting zone materials, topsoil and clay for chemical content and grain size in accordance with QA/QC requirements described in Section 02055 of the Design Specifications. CRA completed agronomic analysis of topsoil samples per Section 02055-2.3-A-5.

CRA reviewed the suppliers' specifications for the geotextile, seed mixture, fertilizer and mulch for the vegetated cover prior to installation to ensure that proposed material met the Design Specifications.

CRA collected samples of stone used for the PVT and Site access roads for chemical and grain size analysis. CRA observed the riprap and PVT installation to ensure compliance with the Design Specifications.

Laboratory analytical reports and data validation memoranda for QA/QC samples collected during remedial construction are provided in Appendix G. The QA/QC sample data confirmed that the materials imported to the Site met the specifications of the Final Design Report.

CRA reviewed QA/QC activities with USACE during their periodic Site inspections and addressed any concerns raised by USACE. CRA discussed QA/QC activities with USEPA, IDEM, and USACE during the monthly construction progress meetings held throughout the construction period. CRA maintained daily logs of Site activities and QA/QC activities completed, and submitted copies to USEPA, IDEM and USACE on a weekly basis. In accordance with Section XXV Retention of Records, CRA or Himco Site Trust will retain all of the QA documents (originals) as described in the CD.

As discussed with USEPA in the Pre-construction Meeting on April 5, 2011, CRA retained a third-party licensed survey to complete the QA/QC of the landfill soil cover thickness throughout the RA construction activities. CRA proposed improvements to Table 3.1 and Table 4.1 of the CQAP to consolidate QA surveying requirements. In a June 9, 2011 email, USEPA approved changes to Table 3.1 and Table 4.1 of the CQAP.

7.2.1 ANALYTICAL LABORATORY DETECTION LIMITS

CRA sampled imported common fill and rooting zone materials for QA in accordance with the Final Design Report. CRA submitted the soil samples to TestAmerica in North Canton, Ohio in accordance with the Quality Assurance Project Plan (QAPP). The laboratory reporting limits for five analytes (1,2-dibromoethane [EDB], 2,4,6-trichlorophenol, bis[2-Chloroethyl]ether, N-Nitrosodi-n-propylamine, and pentachlorophenol) were greater than the IDEM Residential Default Closure Levels (RDCLs). IDEM approved the analytical results for the common fill and rooting zone import materials by email on May 6, 2011. IDEM requested that the reporting limits for topsoil samples meet IDEM RISC levels.

For topsoil, CRA used USEPA Method 8151 for herbicide analysis to achieve a sufficiently low MDL (0.0043 mg/kg) for pentachlorophenol.

USEPA Method 8270 provided the lowest possible reporting limit for 2,4,6-Trichlorophenol, bis(2-Chloroethyl)ether and N-Nitrosodi-n-propylamine, but the reporting limits were greater than the RDCLs. RISC Appendix 1, Default Closure Tables, Table A Residential Closure Levels, Note 5 states that bis(2-Chloroethyl)ether and N-Nitrosodi-n-propylamine may not have an analytical method available to meet the RISC closure limits. The RDCLs are based upon the lowest closure level available from all exposure pathways. For the five analytes in question, the RDCL is based on the groundwater migration pathway. Since IDEM verified that the exposure pathway of concern is direct contact, applicable closure levels are met by the analytical methods used by CRA. USEPA approved the proposed analytical methods and the topsoil data provided in a May 18, 2012 email.

7.3 COMMON FILL MATERIAL PLACEMENT

Clean imported fill material was placed on the waste material to regrade the landfill and provide a uniform surface for the rooting zone and topsoil material. The common fill reduced the yielding and rutting of the waste layer and supported the placement of the rooting zone layer.

7.4 ROOTING ZONE MATERIAL PLACEMENT

A minimum 12-inch layer of rooting zone soil was placed over the reshaped waste layer. The rooting zone layer provides protection to the underlying waste, supports the growth of vegetation, and retains water. The rooting zone soil imported to the Site met the Final Design Report requirements. The soil was classified as a sandy loam per United States Department of Agriculture (USDA) textural chart and met the soil grain size distribution requirements (i.e., soil contained less than 70 percent sand and at least 30 percent silt and clay). The soil was analyzed for TCL VOCs, TCL SVOCs, Pesticides, PCB, herbicides, TAL metals and cyanide. The grain size distribution and analytical data are provided in Appendix G.

Approximately 110,500 yd^3 of rooting zone soil was imported to the Site and placed on the landfill.

7.5 TOPSOIL MATERIAL PLACEMENT

The topsoil layer will support the growth of the vegetative layer, which is an integral component in maintaining the long-term effectiveness of the landfill cover. The vegetative layer will serve to:

1. Stabilize the soil against erosion from surface water runoff and wind
2. Maximize evapotranspiration of soil moisture
3. Increase the aesthetic value of the soil cover

A minimum 6 inch layer of topsoil was placed over the rooting zone layer to support vegetative growth. The topsoil consists of 6 inches of tilled, uncompacted soil. As described in the Final Design Report, QA/QC samples confirmed that the topsoil contained a maximum aggregate size of 1.5 inches, contained 3-percent to 20-percent organic matter, and had a pH of 6.1 to 7.8. Topsoil samples were also analyzed for the following agronomic parameters in accordance with the Design Specifications:

- Ammonium
- Cation exchange capacity
- Nitrate as NO_3
- Percent organic matter, calcium, hydrogen, magnesium, and potassium
- Phosphorus content

CRA confirmed through QA/QC samples that the topsoil imported to the Site met the minimum criteria for vegetative growth for each of these agronomic parameters as presented in Table 4.3 of the Final Design Report.

Approximately 61,000 yd^3 of topsoil was imported to the Site during remedial construction activities.

The topsoil layer will support the growth of the vegetative layer, which is an integral component in maintaining the long-term effectiveness of the landfill cover. The vegetative layer will serve to:

1. Stabilize the soil against erosion from surface water runoff and wind
2. Maximize evapotranspiration of soil moisture

3. Increase the aesthetic value of the soil cover

7.6 SEEDING

In accordance with the Final Design Report, CRA selected grass seed mixture which met the requirements set out by the USDA through the Indiana Soil Conservation Service (SCS). During the development of the 100% Final Design, CRA retained an ecological consultant, Cardno JFNew, to assist with soil and seed specifications and ensure the successful growth of the vegetative layering the soil cover. In response to June 2011 suggestions from the City of Elkhart that the landfill cover include native grasses, CRA consulted with both the Purdue SCS extension for Elkhart County and Cardno JFNew. Cardno JFNew recommended a native grass seed supplement, as summarized in Table 7.1, that would be used in addition to the seed mix specified in the Final Design Report.

In a September 14, 2011 meeting, the USACE approved adding the prairie seed mix as a supplement to the seed mix specified in the Final Design Report.

8.0 SURFACE WATER MANAGEMENT

In accordance with the Surface Water Management Plan (SWM Plan) in the Final Design Report, CRA constructed surface water conveyance controls (drainage swales, cover system stormwater diversion berms/swales, and culverts) to intercept and convey runoff to either the Quarry Pond, the L Pond, or the Little Pond. The surface water conveyance controls as constructed are shown on Drawing No. 7.

CRA prepared a SWPPP that detailed specific sediment and erosion control measures implemented at the Site during construction. The Elkhart County Soil and Water District issued a SWPPP permit to the Site on November 15, 2011 (see Appendix H).

9.0 PASSIVE VENTILATION TRENCH

CRA installed a PVT along the southern and southeastern boundaries of the landfill, as shown on Drawing No. 6. The alignment of the PVT was based on the limit of final cover, and was off-set from perimeter road in accordance with the RD.

The PVT construction details are shown on Drawing No. 10. Consistent with the Final Design Report, CRA constructed the PVT with approximately 1,200 linear ft of slotted 4-inch Schedule 40 polyvinyl chloride (PVC) piping within a trench filled with a porous gravel column. The trench is approximately 3 ft wide and the slotted pipe was placed approximately 2 ft above the water table (approximately 7 ft bgs at the time of installation in May 2012). This depth accounts for seasonal fluctuations in the groundwater elevations at the Site. CRA installed a geotextile separator over the gravel, and covered the geotextile with 6 inches of rooting zone soil and 6 inches of topsoil. The width of the porous gravel trench is such that there is at least one diameter width (4 inches) of space on each side of the lateral pipe to provide adequate support for the lateral piping.

Per the Final Design Report, CRA installed 4-inch PVC riser pipes in the PVT every 100 ft. The risers extend from the slotted PVC pipe to a height of approximately 9 ft above the finished ground surface. CRA installed 4-inch diameter wind turbines at the top of each riser. CRA constructed in-ground vaults adjacent to each riser pipe to provide access to ¼-inch sampling ports and the riser to measure depth to water.

9.1 SOIL GAS PROBES ABANDONMENT AND INSTALLATION

In accordance with the Final Design Report, CRA installed 15 permanent soil gas probes (SGP-100 through SGP-114) along the southern and southeastern boundaries of the Site. The soil gas probe locations are shown on Drawing No. 6. CRA installed the soil gas probes approximately 200 ft apart. Soil gas probe construction details are shown on Drawing No. 10. Cross-sections of soil gas probes SGP-100 through SGP-104 are shown on Drawings No. 14 and 15.

The riser pipes for the soil gas probes consist of ½-inch diameter Schedule 40 PVC continuous piping (with no joints). CRA installed the riser pipes at varying depths based on the observed groundwater elevation encountered at the time of installation.

The soil gas probe installation depth and lengths of perforated and solid piping are summarized on Drawing No. 10 and installation logs are provided in Appendix I. At each location, CRA installed the soil gas probes at least 1 foot above the local groundwater table observed during the installation.

CRA installed each soil gas probe in 3/8-inch-diameter clear stone to approximately 1 foot above the top of the screened interval, and used hydrated bentonite to seal the rest of the borehole up to ground surface. CRA completed the soil gas probes with a concrete surface seal and a protective casing fitted with bolts and a lock.

In accordance with the Final Design Report, CRA abandoned eight existing soil gas probes (SGP-6, SGP-7, SGP-8, SGP-9, SGP-17, SGP-18, SGP-22, and SGP-24) to facilitate construction of the soil cover for the landfill. The soil gas probes were abandoned in accordance with the IDNR 312 IAC 13, Rule 10. The abandoned soil gas probes are shown on Drawing No. 4, and abandonment logs at provided in Appendix I.

10.0 ANCILLARY FEATURES

CRA constructed the Site access road in accordance with the Final Design Report specifications except for the portion of the road along the southern Site perimeter. As discussed with the USEPA during the September 14, 2011 Construction Progress Meeting, CRA modified the Site access road along the south portion of the Site. The access road elevation and location was modified from the RD to provide storm water runoff relief to the residential properties south of the Site. The drainage swale on the north side of the access road was widened by adjusting the side slopes from 3H:1V and adjusting the final cover from 4H:1V to 2H:1V in order to effectively convey a 24-hour, 25-year storm event.

11.0 MEETINGS AND INSPECTIONS

11.1 PRE-CONSTRUCTION INSPECTION

In accordance with Section III, Task 4 of the SOW and Section 9.3 if the RAWP, the PSDs held a pre-construction meeting and inspection at the Site on April 5, 2011. USEPA, IDEM, USACE, Himco Site Trust and CRA attended the meeting and Site inspection. The topics discussed during the meeting included lines of authority and communication, documentation and reporting of inspection data, methods for distributing and storing record documents, health and safety and Site security, CQAP modifications, progress schedules and progress meetings, and USEPA public relation responsibilities. The attendees reviewed the scope of work and walked the Site after the meeting.

11.2 MONTHLY PROGRESS MEETINGS

CRA hosted monthly progress meetings at the Site to present construction progress updates, discuss construction QA/QC issues, discuss the schedule, and review technical items requiring USEPA approval. CRA prepared meeting minutes and distributed to the meeting participants, which included USEPA, IDEM, USACE, Himco Site Trust and CRA. CRA provided an updated construction schedule to USEPA and IDEM during these monthly meetings. At USEPA and USACE's request, CRA also distributed CQAP reports by email each week to keep the Agencies apprised of progress and routine inspection results.

11.3 PRE-FINAL CONSTRUCTION INSPECTION

In accordance with Section III, Item 4.2 of the SOW, the PSDs hosted the Pre-Final Construction Inspection at the Site on June 14, 2012. Per the SOW, USEPA, IDEM, Himco Site Trust and CRA completed a walk-through inspection of the Site and reviewed the components of the constructed RA. CRA documented the outstanding items identified during the inspection.

Per Section III Task 4, Item 4.3 of the SOW, the PSDs submitted draft meeting minutes to USEPA on June 19, 2012 via email. The meeting minutes included a punch list of items to be addressed, as identified during the Pre-final Construction Inspection. USEPA issued a letter on June 21, 2012 that documented USEPA's concurrence with the punch list prepared by CRA. On June 29, 2012, CRA submitted a Pre-final Construction

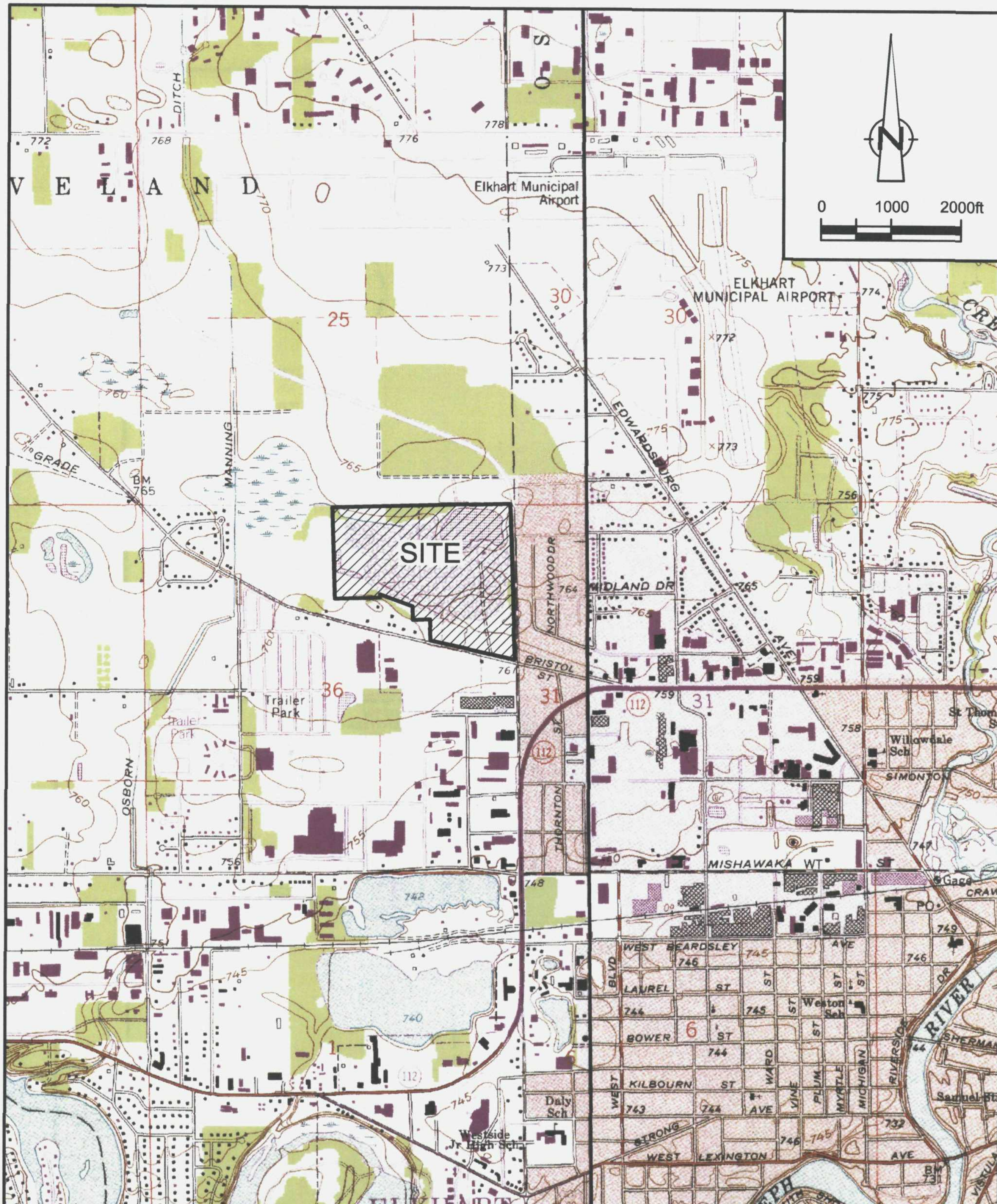
Inspection Report that formalized the punch list, documented that the punch list items had been addressed, and provided photographs of the completed improvements. The Pre-final Construction Inspection Report is provided in Appendix J. On behalf of the PSDs, CRA proposed in the June 29, 2012 letter that the Construction Completion Report be due 30 days after USEPA approved the Pre-Final Construction Inspection Report. USEPA approved the Pre-final Construction Inspection Report on July 16, 2012 and concluded that a Final Construction Inspection was not required.

12.0 OPERATION AND MAINTENANCE

In accordance with Section III, Task 5, of the SOW, the PSDs hand-delivered the Final Operation and Maintenance (O&M) Plan to USEPA on June 14, 2012. The Final O&M Plan documents the scope of the inspections and anticipated maintenance required to maintain the RA.

In accordance with the O&M Plan, the PSDs will commence quarterly O&M inspections of the Site in 2012. The first inspection is scheduled for September 2012.

FIGURES



SOURCE: USGS QUADRANGLE MAPS;
ELKHART AND OSCEOLA, INDIANA

figure 1.1

SITE LOCATION MAP
HIMCO SITE
Elkhart, Indiana

39611-00(033)GN-WA001 JUL 18/2012

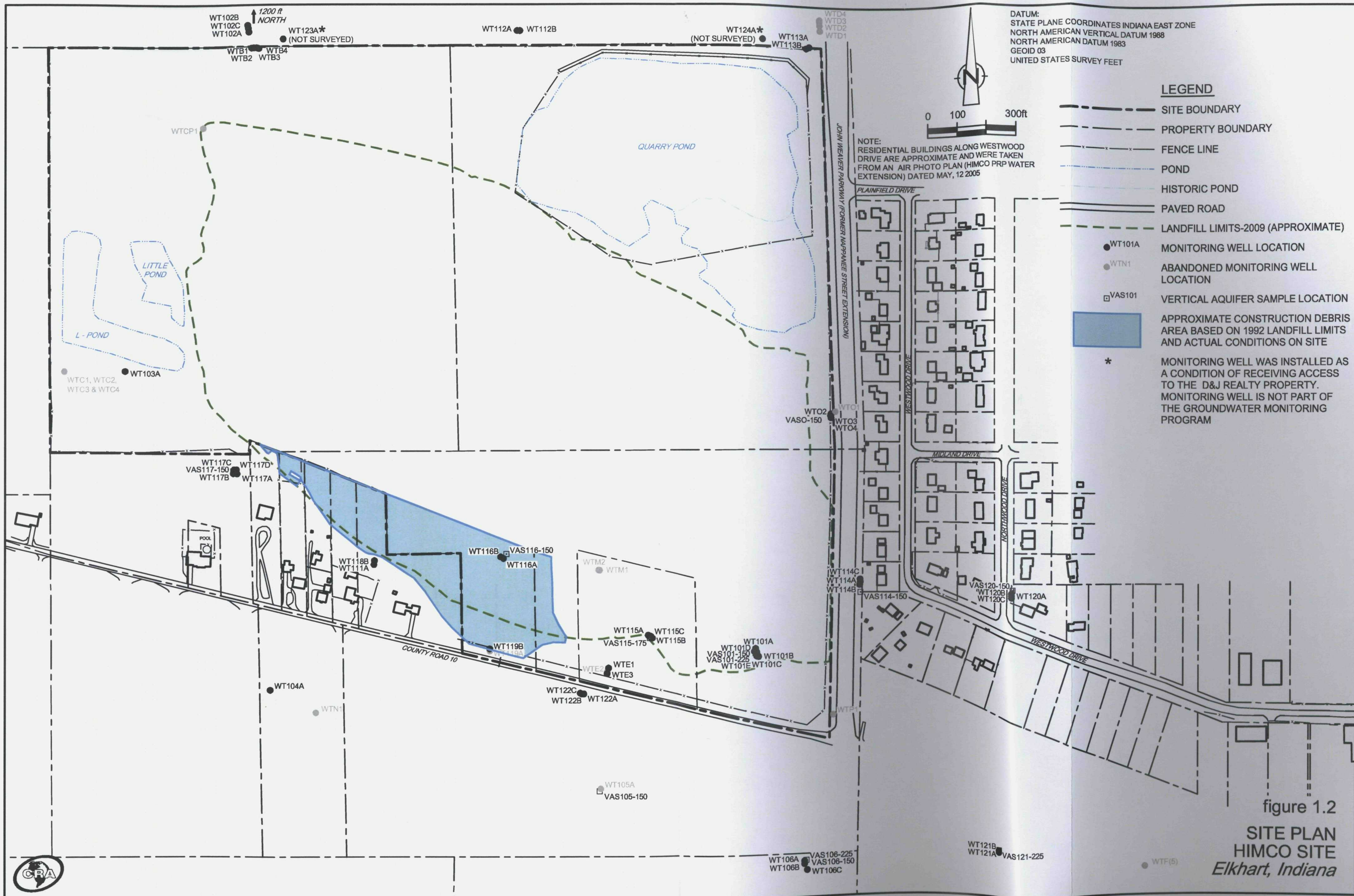


figure 1.2

SITE PLAN
HIMCO SITE
Elkhart, Indiana

39611-00(033)GN-WA002 JUL 27/2012

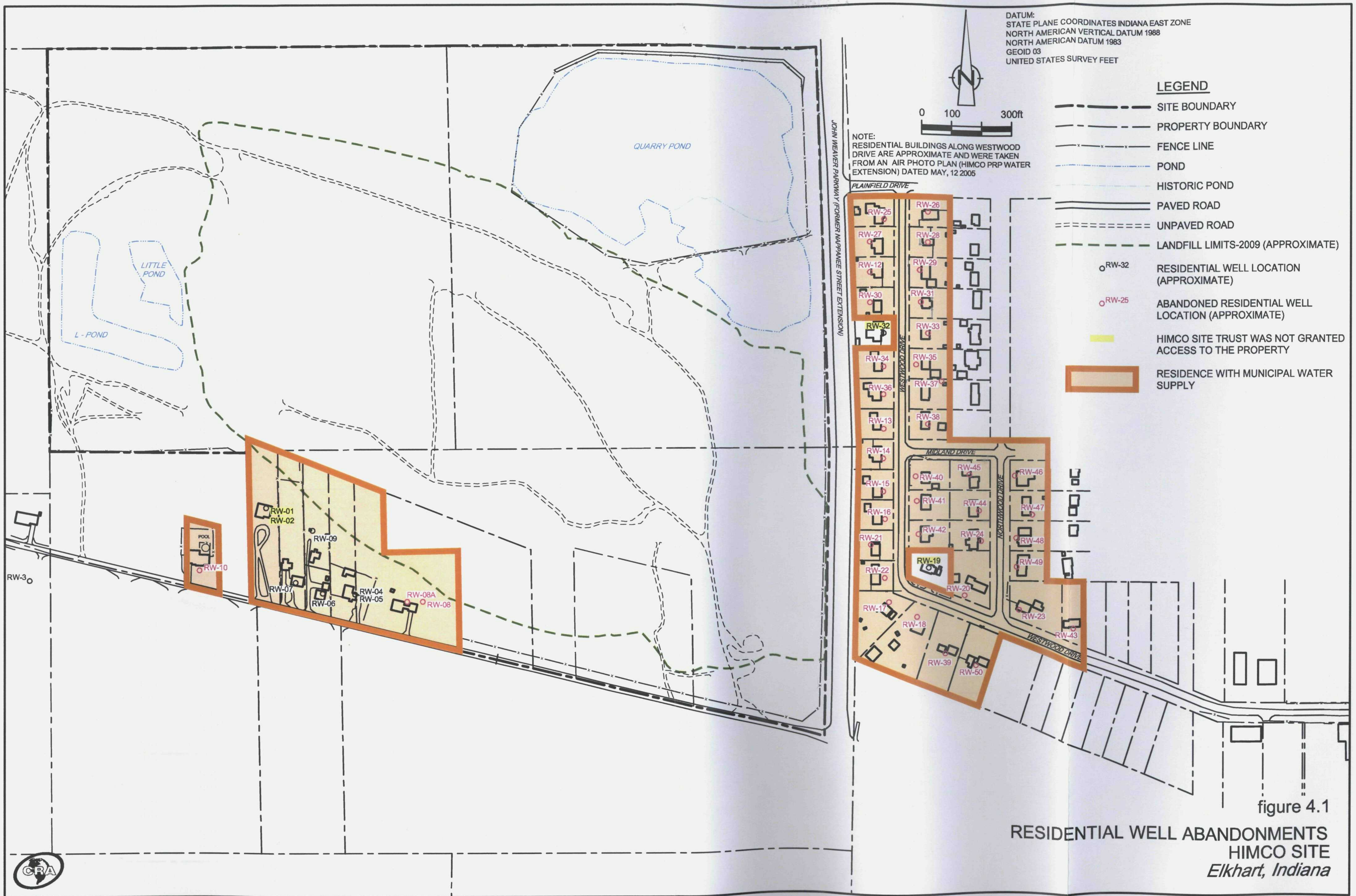


figure 4.1

RESIDENTIAL WELL ABANDONMENTS
HIMCO SITE
Elkhart, Indiana

39611-00(033)GN-WA003 JUL 27/2012

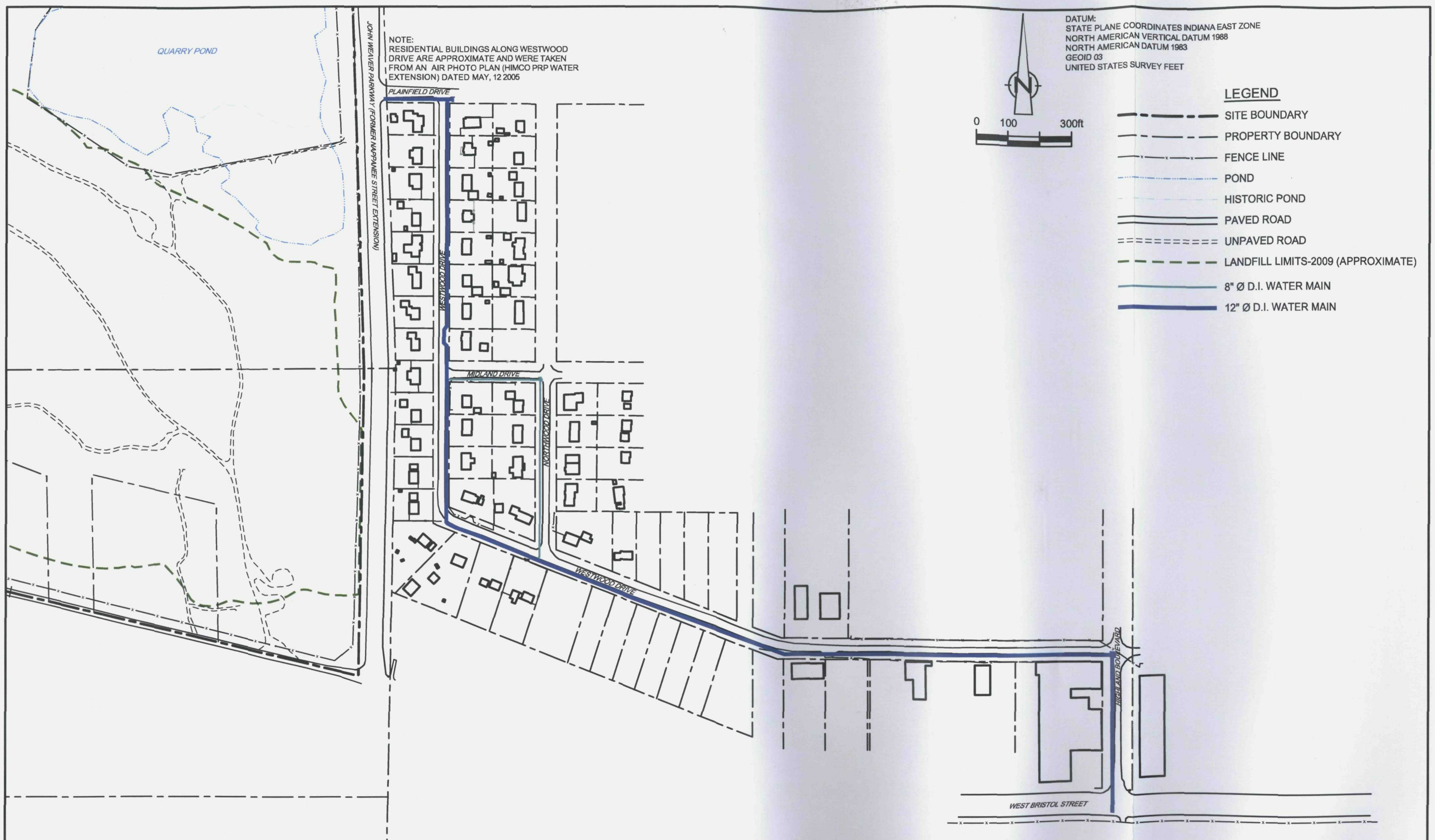


figure 4.2

WATER MAIN EXTENSION
HIMCO SITE
Elkhart, Indiana

39611-00(033)GN-WA003 JUL 19/2012

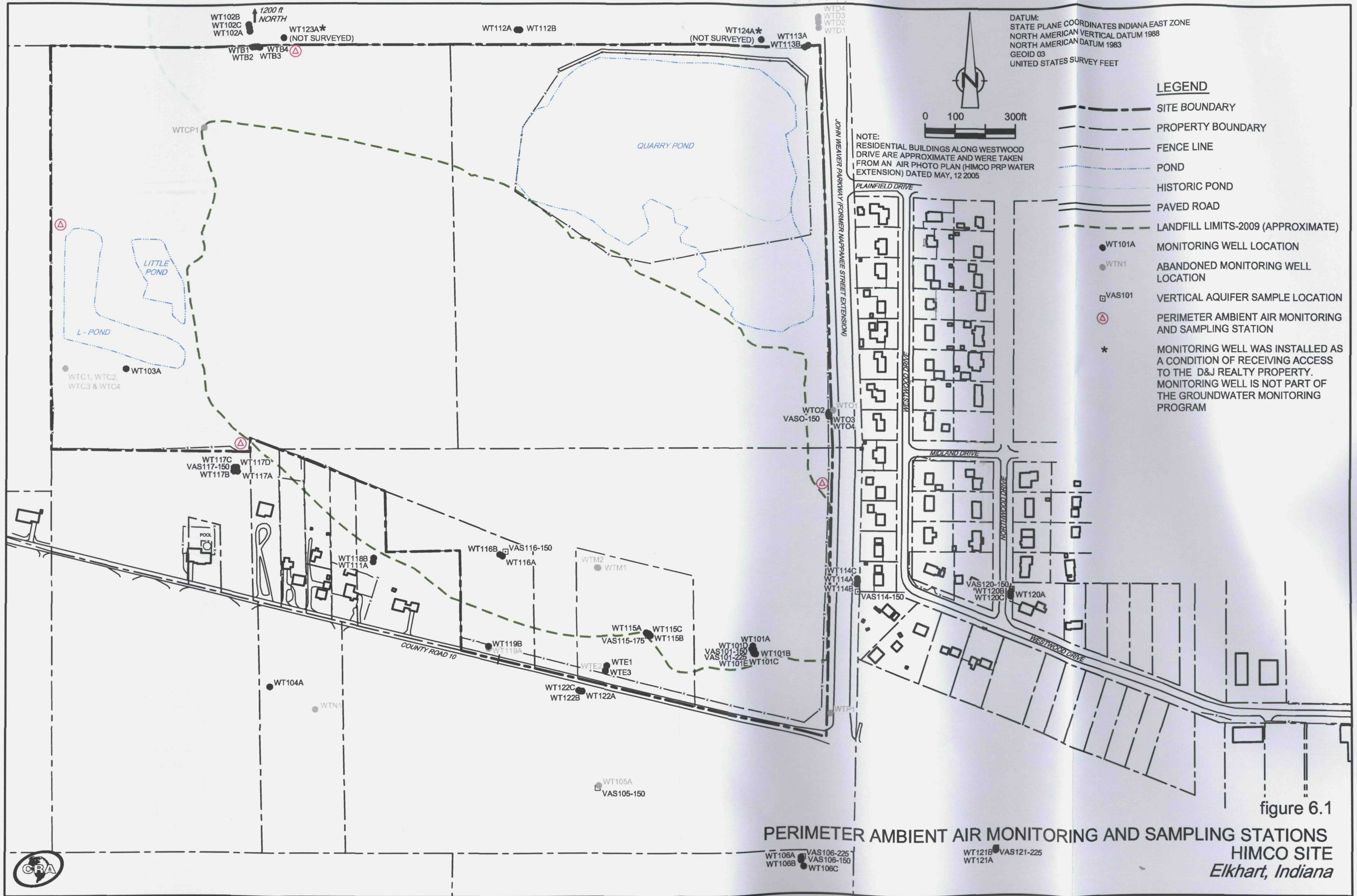


figure 6.1

PERIMETER AMBIENT AIR MONITORING AND SAMPLING STATIONS
HIMCO SITE
Elkhart, Indiana

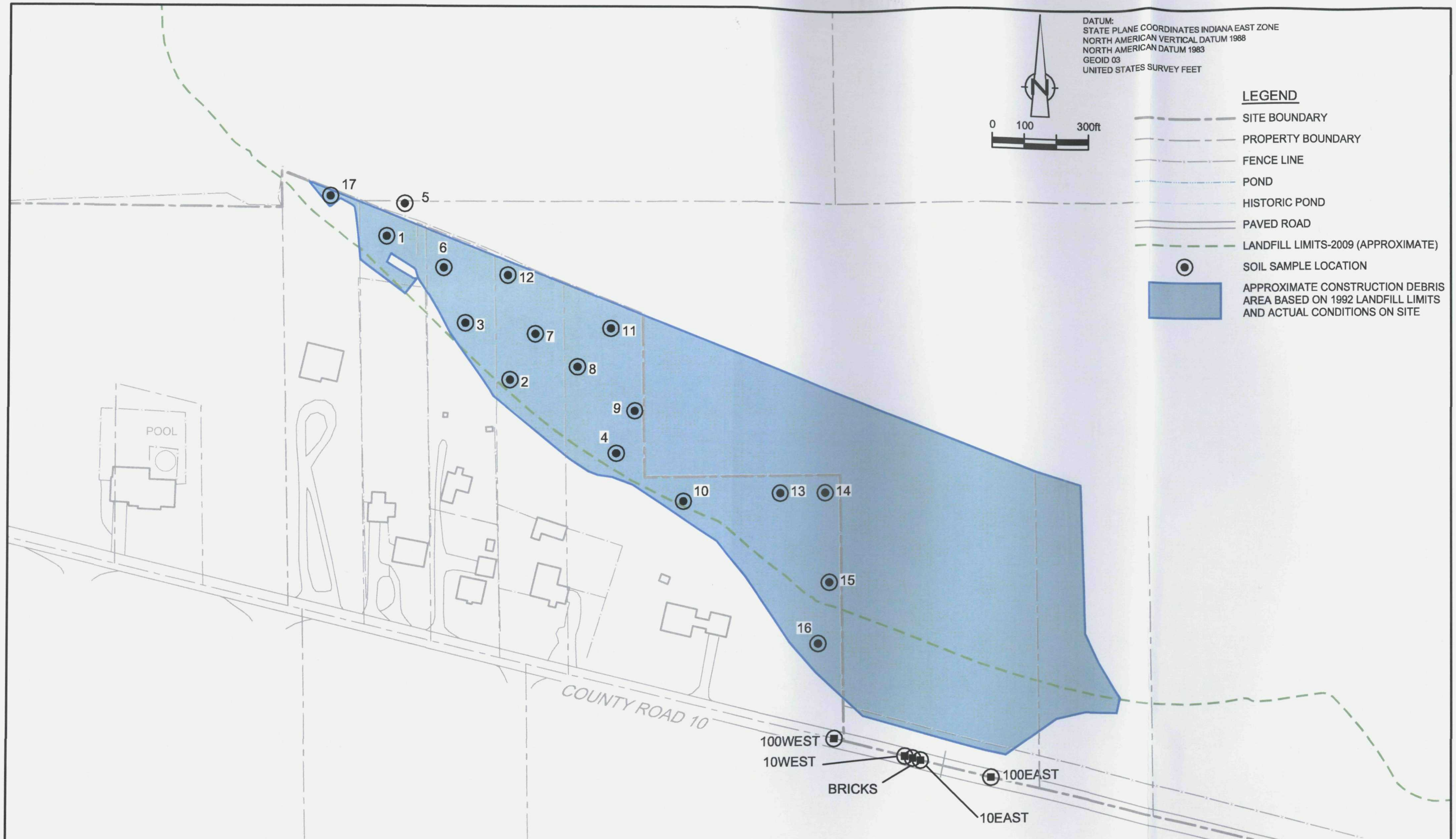


figure 6.2

SOIL SAMPLE LOCATIONS
CONSTRUCTION DEBRIS AREA
HIMCO SITE
Elkhart, Indiana

39611-00(033)GN-BU002 AUG 2/2012

TABLES

TABLE 4.1

RESIDENTIAL WELL ABANDONMENTS
HIMCO SITE
ELKHART, INDIANA

Address	*Abandonment Date*	Water Level *(feet bgs)*	*Total Depth (feet bgs)*	*Well Type*	Notes
27876 Plainfield (Westwood) Drive	12/4/2009	13.0	26.0	1-inch Metal	Well head located in pump house in backyard. Cut well head connection to pump flush with concrete slab.
27853 Westwood Drive	12/4/2009	10.0	39.0	2-inch Metal	No well pump or equipment.
27883 Westwood Drive	12/4/2009	8.0	20.0	2-inch Metal	No well pump or equipment.
27908 Westwood Drive	12/9/2009	--	--	--	Unable to locate well head outside house. Cut well connection to house in crawlspace and filled with bentonite and capped with concrete.
27919 Westwood Drive	12/3/2009	10.5	35.0	4-inch PVC	Well pump removed and left on property.
27928 Westwood Drive	12/3/2009	2.5	23.0	2-inch Metal	No well pump or equipment.
27947 Westwood Drive	--	--	--	--	No access to property.
27948 Westwood Drive	12/3/2009	10.0	50.0	4-inch PVC	Well pump removed and left on property.
27964 Westwood Drive	12/3/2009	10.5	60.0	4-inch PVC	No pump in well. Removed well equipment and left on property.
54093 Westwood Drive	12/4/2009	13.0	38.0	4-inch PVC	No well pump or equipment.
54106 Westwood Drive	12/4/2009	13.0	23.0	1-inch Metal	No well pump or equipment.
54111 Westwood Drive	12/4/2009	14.0	25.5	2-inch PVC	No well pump or equipment.
54124 Westwood Drive	12/4/2009	13.0	36.0	4-inch PVC	No well pump or equipment.
54125 Westwood Drive	12/4/2009	13.0	36.0	4-inch PVC	No well pump or equipment.
54145 Westwood Drive	12/7/2009	3.0	80.5	2-inch Metal	No well pump or equipment.
54146 Westwood Drive	12/4/2009	13.5	17.5	2-inch Metal	No well pump or equipment.
54161 Westwood Drive	--	--	--	--	No access to property.
54162 Westwood Drive	12/4/2009	2.5	124.5	2-inch Metal	No well pump or equipment.
54179 Westwood Drive	12/3/2009	2.5	81.0	2-inch Metal	Home owner stated they did not want the well head dug out. Backfilled well with bentonite and concrete. Resealed 2-inch cap. No well pump or equipment.
54180 Westwood Drive	12/4/2009	12.0	60.0	4-inch PVC	Well pump removed and left on property.
54197 Westwood Drive	12/3/2009	11.0	46.0	4-inch PVC	Well pump removed and left on property.
54198 Westwood Drive	12/7/2009	13.0	31.0	4-inch PVC	Well pump removed and left on property.
54212 Westwood Drive	12/4/2009	13.0	63.0	2-inch Metal	No well pump or equipment.
54215 Westwood Drive	12/3/2009	11.0	23.5	2-inch Metal	No well pump or equipment.
54231 Westwood Drive	12/7/2009	10.0	20.0	2-inch Metal	No well pump or equipment.
54248 Westwood Drive	12/3/2009	10.5	48.0	4-inch PVC	Well pump removed and left on property.
54253 Westwood Drive	12/3/2009	11.0	72.0	2-inch Metal	No well pump or equipment.
54260 Westwood Drive	12/3/2009	9.0	84.0	4-inch PVC	No pump in well. Removed well equipment and left on property.
54271 Westwood Drive	12/3/2009	12.0	48.0	4-inch PVC	Well pump removed and left on property.
54280 Westwood Drive	12/3/2009	12.0	46.0	5-inch PVC	Well pump removed and left on property.
54287 Westwood Drive	12/7/2009	11.0	37.0	2-inch Metal	No well pump or equipment.
54305 Westwood Drive	12/3/2009	12.0	60.0	4-inch PVC	Well pump removed and left on property.
54239 Northwood Drive	12/7/2009	3.0	43.5	2-inch Metal	No well pump or equipment.
54240 Northwood Drive	12/7/2009	12.0	27.0	1-inch Metal	No well pump or equipment.
54253 Northwood Drive	12/4/2009	13.0	71.0	2-inch Metal	No well pump or equipment.
54250 Northwood Drive	12/7/2009	10.0	23.5	1-inch Metal	No well pump or equipment.
54271 Northwood Drive	12/4/2009	10.0	48.0	4-inch PVC	Well pump removed and left on property.
54274 Northwood Drive	12/4/2009	12.0	38.0	4-inch PVC	Well pump removed and left on property.
54290 Northwood Drive	12/7/2009	12.0	27.5	1-inch Metal	No well pump or equipment.
28279 County Road 10	7/12/2012	12.0	74.0	4-inch PVC	Well pump removed and left on property.
28279 County Road 10	7/12/2012	10.1	148.1	2-inch Metal	No pump in well or equipment.
28213 County Road 10	-	-	-	-	No monitoring well found.
28330 County Road 10	-	-	-	-	No monitoring well found.
28331 County Road 10	-	-	-	-	No monitoring well found.
28343 County Road 10	-	-	-	-	No monitoring well found.
28369 County Road 10	-	-	-	-	No monitoring well found.
28399 County Road 10	7/12/2012	4.7	169.5	2-inch Metal	No pump in well or equipment.

TABLE 4.2

MUNICIPAL WATER SUPPLY CONNECTION LIST
HIMCO SITE
ELKHART, INDIANA

1.	54093	Westwood Drive	21.	54305	Westwood Drive
2.	27876	Westwood Drive	22.	27964	Westwood Drive
3.	54111	Westwood Drive	23.	27948	Westwood Drive
4.	54106	Westwood Drive	24.	27928	Westwood Drive
5.	54125	Westwood Drive	25.	27908	Westwood Drive
6.	54124	Westwood Drive	26.	54248	Westwood Drive
7.	54145	Westwood Drive	27.	54260	Westwood Drive
8.	54146	Westwood Drive	28.	54280	Westwood Drive
9.	54161	Westwood Drive [1]	29.	27947	Westwood Drive [1]
10.	54162	Westwood Drive	30.	27883	Westwood Drive
11.	54179	Westwood Drive	31.	27853	Westwood Drive
12.	54180	Westwood Drive	32.	27919	Westwood Drive
13.	54197	Westwood Drive	33.	54271	Northwood Drive
14.	54198	Westwood Drive	34.	54253	Northwood Drive
15.	54215	Westwood Drive	35.	54239	Northwood Drive
16.	54212	Westwood Drive	36.	54240	Northwood Drive
17.	54231	Westwood Drive	37.	54250	Northwood Drive
18.	54253	Westwood Drive	38.	54274	Northwood Drive
19.	54271	Westwood Drive	39.	54290	Northwood Drive
20.	54287	Westwood Drive			

Notes:

(1) Himco Site Trust was not granted access to the property and the resident denied the offer to connect to municipal water supply. The property was not connected to the water main extension.

TABLE 6.1

FIELD SAMPLE KEY
CDA SOIL SAMPLES
HIMCO SITE
ELKHART, INDIANA

Sample Location	*Sample ID*	*Adress/Location*	*Sample date/time*	*Sample Depth*
CDA Sample 1	SO-JONES-062811	28343 County Road 10	28-Jun-11	6 fbgs
CDA Sample 2	SO-ROL SOUTH-062911	28213 County Road 10	29-Jun-11	6 fbgs
CDA Sample 3	SO-RAM SOUTH-062911	28333 County Road 10	29-Jun-11	6 fbgs
CDA Sample 4	SO-BOW SOUTH-062911	28279 County Road 10	29-Jun-11	6 fbgs
CDA Sample 5	SO-JONES NORTH-063011	Himco Site, north of 28343 County Road 10	30-Jun-11	6 fbgs
CDA Sample 6	SO-RAM NORTH-063011	28333 County Road 10	30-Jun-11	6 fbgs
CDA Sample 7	SO-ROL NORTH-063011	28213 County Road 10	30-Jun-11	6 fbgs
CDA Sample 8	SO-BOW WEST-063011	28279 County Road 10	30-Jun-11	6 fbgs
CDA Sample 9	SO-BOW CENTRAL 1-063011	28279 County Road 10	30-Jun-11	6 fbgs
CDA Sample 10	SO-BOWERS CENTRAL 2-070611	28279 County Road 10	6-Jul-11	6 fbgs
CDA Sample 11	SO-BOWERS NW-070611	28279 County Road 10	6-Jul-11	6 fbgs
CDA Sample 12	SO-RAM ROL N-070611	28213 County Road 10	6-Jul-11	6 fbgs
CDA Sample 13	SO-BOWERS 4-070711	28279 County Road 10	7-Jul-11	6 fbgs
CDA Sample 14	SO-BOWERS 3-070711	28279 County Road 10	7-Jul-11	6 fbgs
CDA Sample 15	SO-BOWERS 5-071411	28279 County Road 10	14-Jul-11	6 fbgs
CDA Sample 16	SO-BOWERS 6-071411	28279 County Road 10	14-Jul-11	6 fbgs
CDA Sample 17	SO-RUM-100511	28369 County Road 10	5-Oct-11	6 fbgs
BRICKS	SO-BRICKS-081011	Himco Site, adjacent to County Road 10	10-Aug-11	1 fbgs
100WEST	SO-100 WEST-081011	Himco Site, adjacent to County Road 10	10-Aug-11	1 fbgs
100EAST	SO-100 EAST-081011	Himco Site, adjacent to County Road 10	10-Aug-11	1 fbgs
10WEST	SO-10 WEST-082511	Himco Site, adjacent to County Road 10	25-Aug-11	1 fbgs
10EAST	SO-10 EAST-082511	Himco Site, adjacent to County Road 10	25-Aug-11	1 fbgs

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:		2009 IDEM - Default Closure Levels		CDA Sample 1	CDA Sample 2	CDA Sample 3	CDA Sample 4	CDA Sample 5	CDA Sample 6	CDA Sample 7	CDA Sample 8	CDA Sample 9	CDA Sample 10	CDA Sample 11	CDA Sample 12
Sample Date:				6/28/2011	6/29/2011	6/29/2011	6/29/2011	6/30/2011	6/30/2011	6/30/2011	6/30/2011	6/30/2011	7/6/2011	7/6/2011	7/6/2011
Sample Depth:				6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS
Parameters	*Units*	*Residential* *a*	*Industrial* *b*												
Volatile Organic Compounds															
1,1,1-Trichloroethane	mg/kg	1.9	280	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,1,2,2-Tetrachloroethane	mg/kg	0.007	0.11	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,1,2-Trichloroethane	mg/kg	0.03	0.3	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,1-Dichloroethane	mg/kg	5.6	58	0.00048 J	0.00049 J	0.0005 J	0.00067 J	0.0066	0.009 U	0.0056 U	0.0056 U	0.004 J	0.0062 U	0.004 J	0.0028 J
1,1-Dichloroethene	mg/kg	0.058	42	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,2,4-Trichlorobenzene	mg/kg	5.3	77	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	-	-	0.011 UJ	0.012 UJ	0.012 UJ	0.013 UJ	0.013 UJ	0.018 UJ	0.011 UJ	0.011 UJ	0.016 UJ	0.012 UJ	0.013 UJ	0.023 UJ
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.00034	0.0096	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,2-Dichlorobenzene	mg/kg	17	220	0.0056 U	0.0059 U	0.0059 U	0.00065 J	0.006 J	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.00087 J	0.012 U
1,2-Dichloroethane	mg/kg	0.024	0.15	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,2-Dichloropropane	mg/kg	0.03	0.25	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,3-Dichlorobenzene	mg/kg	2.3	8.9	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
1,4-Dichlorobenzene	mg/kg	2.2	3.4	0.0056 U	0.0059 U	0.0009 J	0.007	0.023	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.0094 J
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	35	250	0.022 U	0.024 U	0.023 U	0.029	0.025 U	0.026 J	0.022 U	0.022 U	0.0082 J	0.025 U	0.0079 J	0.043 J
2-Hexanone	mg/kg	-	-	0.022 UJ	0.024 UJ	0.023 UJ	0.025 UJ	0.025 UJ	0.036 UJ	0.022 UJ	0.022 UJ	0.033 UJ	0.025 U	0.026 U	0.046 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	20	75	0.022 U	0.024 U	0.023 U	0.025 U	0.025 U	0.036 U	0.0011 J	0.00073 J	0.033 U	0.025 U	0.026 U	0.046 U
Acetone	mg/kg	28	370	0.022 U	0.024 U	0.023 U	0.13	0.025 U	0.11 U	0.022 U	0.022 U	0.033 U	0.025 U	0.025 J	0.12 J
Benzene	mg/kg	0.034	0.35	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.006 J	0.0062 J	0.0032 J	0.0056 U	0.0052 J	0.0062 U	0.0021 J	0.012
Bromodichloromethane	mg/kg	0.51	0.51	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Bromoform	mg/kg	0.6	2.7	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 UJ	0.0065 UJ	0.012 UJ
Bromomethane (Methyl bromide)	mg/kg	0.052	0.7	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Carbon disulfide	mg/kg	10	82	0.0056 U	0.0059 U	0.0059 U	0.00068 J	0.0063 U	0.009 U	0.0056 U	0.00055 J	0.00078 J	0.0062 U	0.00065 J	0.012 U
Carbon tetrachloride	mg/kg	0.066	0.29	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Chlorobenzene	mg/kg	1.3	27	0.0056 U	0.0059 U	0.0059 U	0.00054 J	0.0055 J	0.009 U	0.0017 J	0.0056 U	0.0081 U	0.0062 U	0.0013 J	0.0026 J
Chloroethane	mg/kg	0.65	10	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Chloroform (Trichloromethane)	mg/kg	0.47	4.7	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Chloromethane (Methyl chloride)	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
cis-1,2-Dichloroethene	mg/kg	0.4	5.8	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
cis-1,3-Dichloropropene	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Cyclohexane	mg/kg	69	69	0.011 U	0.012 U	0.012 U	0.013 U	0.00041 J	0.018 U	0.011 U	0.011 U	0.016 U	0.012 U	0.013 U	0.011 J
Dibromochloromethane	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.00066 J	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Ethylbenzene	mg/kg	13	160	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.00051 J	0.009 U	0.00059 J	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Isopropyl benzene	mg/kg	11	42	0.0056 U	0.0059 U	0.0059 U	0.00087 J	0.045	0.009 U	0.017	0.0056 U	0.0038 J	0.0062 U	0.0074	0.015
Methyl acetate	mg/kg	-	-	0.011 U	0.0038 J	0.012 U	0.0018 J	0.013 U	0.018 U	0.011 U	0.011 U	0.003 J	0.012 U	0.013 U	0.023 U
Methyl cyclohexane	mg/kg	-	-	0.011 U	0.012 U	0.012 U	0.013 U	0.00068 J	0.018 U	0.00075 J	0.011 U	0.016 U	0.012 U	0.00068 J	0.004 J
Methyl tert butyl ether (MTBE)	mg/kg	0.18	3.2	0.022 U	0.024 U	0.023 U	0.025 U	0.025 U	0.036 U	0.022 U	0.022 U	0.033 U	0.025 U	0.026 U	0.046 U
Methylene chloride	mg/kg	0.023	1.8	0.016 U	0.015 U	0.014 U	0.017 U	0.016 U	0.023 U	0.014 U	0.018 U	0.021 U	0.0062 U	0.0065 U	0.012 U
Styrene	mg/kg	3.5	550	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Tetrachloroethene	mg/kg	0.058	0.64	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Toluene	mg/kg	12	96	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.00049 J	0.0021 J	0.0053 J	0.0056 U	0.00096 J	0.0062 U	0.0065 U	0.0014 J
trans-1,2-Dichloroethene	mg/kg	0.68	14	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
trans-1,3-Dichloropropene	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Trichloroethene	mg/kg	0.057	0.35	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Trichlorofluoromethane (CFC-11)	mg/kg	29	540	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Vinyl chloride	mg/kg	0.013	0.027	0.0056 U	0.0059 U	0.0059 U	0.0063 U	0.0063 U	0.009 U	0.0056 U	0.0056 U	0.0081 U	0.0062 U	0.0065 U	0.012 U
Xylenes (total)	mg/kg	170	170	0.011 U	0.012 U	0.012 U	0.013 U	0.013 U	0.018 U	0.0013 J	0.011 U	0.016 U	0.012 U	0.013 U	0.023 U

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:				*CDA Sample 1*	*CDA Sample 2*	*CDA Sample 3*	*CDA Sample 4*	*CDA Sample 5*	*CDA Sample 6*	*CDA Sample 7*	*CDA Sample 8*	*CDA Sample 9*	*CDA Sample 10*	*CDA Sample 11*	*CDA Sample 12*
Sample Date:				*6/28/2011*	*6/29/2011*	*6/29/2011*	*6/29/2011*	*6/30/2011*	*6/30/2011*	*6/30/2011*	*6/30/2011*	*6/30/2011*	*7/6/2011*	*7/6/2011*	*7/6/2011*
Sample Depth:				*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*	*6- ft BGS*
		2009 IDEM - Default Closure Levels													
Parameters	*Units*	*Residential*	*Industrial*												
		a	*b*												
Semi-volatile Organic Compounds															
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.027	0.26	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,4,5-Trichlorophenol	mg/kg	250	690	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,4,6-Trichlorophenol	mg/kg	0.07	0.2	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,4-Dichlorophenol	mg/kg	1.1	3	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,4-Dimethylphenol	mg/kg	9	25	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,4-Dinitrophenol	mg/kg	0.29	0.82	1.9 U	R	R	R	R	R	R	R	R	1.7 UJ	2.1 UJ	3 UJ
2,4-Dinitrotoluene	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2,6-Dinitrotoluene	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2-Chloronaphthalene	mg/kg	42	560	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2-Chlorophenol	mg/kg	0.75	10	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2-Methylnaphthalene	mg/kg	3.1	42	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2-Methylphenol	mg/kg	14	39	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
2-Nitroaniline	mg/kg	0.67	1.9	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 U	2.1 U	3 U
2-Nitrophenol	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 UJ	0.53 UJ	0.4 UJ	0.4 UJ	0.53 UJ	0.36 U	0.43 U	0.62 U
3&4-Methylphenol	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
3,3'-Dichlorobenzidine	mg/kg	0.062	0.21	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 U	2.1 U	3 U
3-Nitroaniline	mg/kg	-	-	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 U	2.1 U	3 U
4,6-Dinitro-2-methylphenol	mg/kg	-	-	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 UJ	2.1 UJ	3 UJ
4-Bromophenyl phenyl ether	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
4-Chloro-3-methylphenol	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
4-Chloroaniline	mg/kg	0.97	2.7	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
4-Chlorophenyl phenyl ether	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
4-Nitroaniline	mg/kg	-	-	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 U	2.1 U	3 U
4-Nitrophenol	mg/kg	-	-	1.9 U	1.9 UJ	1.9 UJ	1.9 UJ	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 UJ	2.1 UJ	3 UJ
Acenaphthene	mg/kg	130	1800	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.05 J
Acenaphthylene	mg/kg	18	180	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Acetophenone	mg/kg	-	-	0.078 U	0.081 U	0.079 U	0.081 U	0.087 U	0.11 U	0.081 U	0.081 U	0.11 U	0.073 U	0.086 U	0.12 U
Anthracene	mg/kg	2000	2000	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Atrazine	mg/kg	0.048	0.21	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Benzaldehyde	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.037 J
Benzo(a)anthracene	mg/kg	5	15	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Benzo(a)pyrene	mg/kg	0.5	1.5	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.058 J	0.62 U
Benzo(b)fluoranthene	mg/kg	5	15	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Benzo(g,h,i)perylene	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Benzo(k)fluoranthene	mg/kg	50	150	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Biphenyl (1,1-Biphenyl)	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
bis(2-Chloroethoxy)methane	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
bis(2-Chloroethyl)ether	mg/kg	0.0007	0.012	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	300	980	0.39 U	0.4 U	0.23 J	0.035 J	0.045 J	0.031 J	0.044 J	0.4 U	0.53 U	0.36 U	0.12 J	0.62 U
Butyl benzylphthalate (BBP)	mg/kg	310	310	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Caprolactam	mg/kg	-	-	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Carbazole	mg/kg	5.9	20	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.053 J
Chrysene	mg/kg	500	1500	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Dibenz(a,h)anthracene	mg/kg	0.5	1.5	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Dibenzofuran	mg/kg	4.9	65	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.039 J
Diethyl phthalate	mg/kg	450	840	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Dimethyl phthalate	mg/kg	1100	1100	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Di-n-butylphthalate (DBP)	mg/kg	760	760	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Di-n-octyl phthalate (DnOP)	mg/kg	2000	2000	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Fluoranthene	mg/kg	2000	2000	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Fluorene	mg/kg	170	2000	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.042 J
Hexachlorobenzene	mg/kg	2.2	3.9	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:				CDA Sample 1	CDA Sample 2	CDA Sample 3	CDA Sample 4	CDA Sample 5	CDA Sample 6	CDA Sample 7	CDA Sample 8	CDA Sample 9	CDA Sample 10	CDA Sample 11	CDA Sample 12
Sample Date:				6/28/2011	6/29/2011	6/29/2011	6/29/2011	6/30/2011	6/30/2011	6/30/2011	6/30/2011	6/30/2011	7/6/2011	7/6/2011	7/6/2011
Sample Depth:				6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS
		2009 IDEM - Default Closure Levels													
Parameters	*Units*	*Residential*	*Industrial*												
		a	*b*												
Hexachlorobutadiene	mg/kg	24	66	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Hexachlorocyclopentadiene	mg/kg	400	720	1.9 U	1.9 U	1.9 U	1.9 U	2.1 U	2.6 U	1.9 U	2 U	2.5 U	1.7 U	2.1 U	3 U
Hexachloroethane	mg/kg	2.8	7.7	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Indeno(1,2,3-cd)pyrene	mg/kg	5	15	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Isophorone	mg/kg	5.3	18	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Naphthalene	mg/kg	0.7	170	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Nitrobenzene	mg/kg	0.028	0.34	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
N-Nitrosodi-n-propylamine	mg/kg	0.0006	0.002	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
N-Nitrosodiphenylamine	mg/kg	9.7	32	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Pentachlorophenol	mg/kg	0.028	0.66	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Phenanthrene	mg/kg	13	170	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.0088 J
Phenol	mg/kg	56	160	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Pyrene	mg/kg	2000	2000	0.39 U	0.4 U	0.39 U	0.4 U	0.43 U	0.53 U	0.4 U	0.4 U	0.53 U	0.36 U	0.43 U	0.62 U
Pyridine	mg/kg			-	-	-	-	-	-	-	-	-	-	-	-
Metals															
Aluminum	mg/kg	-	-	1200	2300	1200	2300	2900	2300	1800	2100	6200	1100	4400	2900
Antimony	mg/kg	5.4	37	4.6 U	6.6 U	6.1 U	7.0 U	5.5 U	9.1 U	7.0 U	5.6 U	9.2 U	6.0 U	6.6 U	11 U
Arsenic	mg/kg	3.9	5.8	0.32 J	0.48 J	0.35 J	1.2 U	0.92 U	1.5 U	1.2 U	0.37 J	0.81 J	0.47 J	0.33 J	1.2 J
Barium	mg/kg	1600	10000	4.3 J	5.3 J	2.8 J	16 J	12 J	11 J	6.4 J	11 J	19 J	11 J	17 J	14 J
Beryllium	mg/kg	63	2300	0.38 U	0.55 U	0.51 U	0.58 U	0.46 U	0.76 U	0.58 U	0.47 U	0.77 U	0.50 U	0.55 U	0.93 U
Cadmium	mg/kg	7.5	77	0.38 U	0.55 U	0.51 U	0.58 U	0.46 U	0.76 U	0.58 U	0.47 U	0.77 U	0.50 U	0.050 J	0.13 J
Calcium	mg/kg	-	-	470	1000	590	1200	1100	210 J	600	660	4600	1600	1600	6800
Chromium	mg/kg	-	-	2.4	4.2	3.1	2.8	4.3	3.0	3.0	3.6	7.4	1.8	5.9	4.9
Cobalt	mg/kg	-	-	1.1 J	1.3 J	0.84 J	0.46 J	0.98 J	0.41 J	0.91 J	2.5 J	0.98 J	0.46 J	1.2 J	0.57 J
Copper	mg/kg	920	2900	1.1 J	1.3 J	2.5 U	2.9 U	2.3 U	3.8 U	2.7 J	1.8 J	2.1 J	1.6 J	2.6 J	3.8 J
Iron	mg/kg	-	-	1100	2200	1400	1700	1600	830	1300	1600	1900	940	2100	1000
Lead	mg/kg	81	230	1.6	2.2	1.2	1.9	2.2	1.6	3.1	2.6	5.9	2.0	4.6	4.2
Magnesium	mg/kg	-	-	410	730	510	390 J	680	330 J	480 J	580	780	150 J	770	300 J
Manganese	mg/kg	-	-	15	31	20	16	23	10	16	21	28	47	33	29
Mercury	mg/kg	2.1	32	0.11 U	0.081 U	0.082 U	0.11 U	0.12 U	0.16 U	0.11 U	0.12 U	0.14 U	0.087 U	0.091 U	0.17 U
Nickel	mg/kg	950	2700	2.4 J	3.3 J	2.0 J	1.5 J	2.8 J	1.5 J	2.2 J	3.5 J	3.4 J	0.71 J	3.3 J	1.9 J
Potassium	mg/kg	-	-	97 J	180 J	510 U	580 U	120 J	160 J	130 J	130 J	240 J	120 J	170 J	130 J
Selenium	mg/kg	5.2	53	0.38 U	0.55 U	0.51 U	0.58 U	0.46 U	0.76 U	0.58 U	0.47 U	0.77 U	0.50 U	0.55 U	0.93 U
Silver	mg/kg	31	87	0.76 U	1.1 U	1.0 U	1.2 U	0.92 U	1.5 U	1.2 U	0.94 U	1.5 U	0.99 U	1.1 U	1.9 U
Sodium	mg/kg	-	-	380 U	550 U	510 U	580 U	460 U	950	580 U	470 U	770 U	500 U	550 U	930 U
Thallium	mg/kg	2.8	10	0.76 U	1.1 U	1.0 U	1.2 U	0.92 U	1.5 U	1.2 U	0.94 U	1.5 U	0.99 U	1.1 U	1.9 U
Vanadium	mg/kg	-	-	2.9 J	4.3 J	2.7 J	2.6 J	3.7 J	3.1 J	2.8 J	3.7 J	5.4 J	1.4 J	5.1 J	4.0 J
Zinc	mg/kg	10000	10000	7.2	16	7.4	12	10	6.1	8.4	10	12	8.0	12	11
General Chemistry															
Cyanide (total)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent solids, vol.	%	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

a, b Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RISC), Appendix 1 Default Closure Level (DCL) Tables for Residential (a) and Industrial (b) Land Use Applications

$\boxed{10}$ Value is greater than the associated criteria indicated.

U Analyte was positively identified, but was not detected at a value greater than the associated value.

J Analyte value is estimated.

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:				CDA Sample 13	CDA Sample 14	CDA Sample 15	CDA Sample 16	CDA Sample 17
Sample Date:				7/7/2011	7/7/2011	7/14/2011	7/14/2011	10/5/2011
Sample Depth:				6-ft BGS	6-ft BGS	6-ft BGS	6-ft BGS	6-ft BGS
		2009 IDEM - Default Closure Levels						
Parameters	*Units*	*Residential*	*Industrial*					
		a	*b*					
Volatile Organic Compounds								
1,1,1-Trichloroethane	mg/kg	1.9	280	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,1,2,2-Tetrachloroethane	mg/kg	0.007	0.11	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,1,2-Trichloroethane	mg/kg	0.03	0.3	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,1-Dichloroethane	mg/kg	5.6	58	16 U	0.22	0.0057 U	0.0061 U	0.0069 U
1,1-Dichloroethene	mg/kg	0.058	42	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,2,4-Trichlorobenzene	mg/kg	5.3	77	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,2-Dibromo-3-chloropropane (DBCP)	mg/kg	-	-	32 U	0.066 UJ	0.011 U	0.012 U	0.014 U
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	0.00034	0.0096	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,2-Dichlorobenzene	mg/kg	17	220	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,2-Dichloroethane	mg/kg	0.024	0.15	16 U	0.0029 J	0.0057 U	0.0061 U	0.0069 U
1,2-Dichloropropane	mg/kg	0.03	0.25	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,3-Dichlorobenzene	mg/kg	2.3	8.9	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
1,4-Dichlorobenzene	mg/kg	2.2	3.4	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
2-Butanone (Methyl ethyl ketone) (MEK)	mg/kg	35	250	65 U	0.059 J	0.023 U	0.024 U	0.028 U
2-Hexanone	mg/kg	-	-	65 U	0.13 U	0.023 U	0.024 U	0.028 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	mg/kg	20	75	65 U	0.13 U	0.023 U	0.024 U	0.028 U
Acetone	mg/kg	28	370	65 U	0.2 J	0.023 U	0.024 U	0.028 U
Benzene	mg/kg	0.034	0.35	4.9 J[ab]	0.11[a]	0.0057 U	0.0061 U	0.0069 U
Bromodichloromethane	mg/kg	0.51	0.51	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Bromoform	mg/kg	0.6	2.7	16 U	0.033 UJ	0.0057 U	0.0061 U	0.0069 U
Bromomethane (Methyl bromide)	mg/kg	0.052	0.7	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 UJ
Carbon disulfide	mg/kg	10	82	16 U	0.0064 J	0.0057 U	0.0061 U	0.0069 U
Carbon tetrachloride	mg/kg	0.066	0.29	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Chlorobenzene	mg/kg	1.3	27	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Chloroethane	mg/kg	0.65	10	16 U	0.033 U	0.0057 UJ	0.0061 UJ	0.0069 U
Chloroform (Trichloromethane)	mg/kg	0.47	4.7	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Chloromethane (Methyl chloride)	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 UJ
cis-1,2-Dichloroethene	mg/kg	0.4	5.8	16 U	0.02 J	0.0057 U	0.0061 U	0.0069 U
cis-1,3-Dichloropropene	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Cyclohexane	mg/kg	69	69	32 U	0.066 U	0.011 U	0.012 U	0.014 U
Dibromochloromethane	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Dichlorodifluoromethane (CFC-12)	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Ethylbenzene	mg/kg	13	160	4.8 J	0.24	0.0057 U	0.0061 U	0.0069 U
Isopropyl benzene	mg/kg	11	42	0.42 J	0.01 J	0.0057 U	0.0061 U	0.0069 U
Methyl acetate	mg/kg	-	-	32 U	0.066 U	0.011 U	0.012 U	0.014 U
Methyl cyclohexane	mg/kg	-	-	32 U	0.066 U	0.011 U	0.012 U	0.014 U
Methyl tert butyl ether (MTBE)	mg/kg	0.18	3.2	65 U	0.13 U	0.023 U	0.024 U	0.028 U
Methylene chloride	mg/kg	0.023	1.8	16 U	0.033 U	0.0057 U	0.0061 U	0.0041 J
Styrene	mg/kg	3.5	550	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Tetrachloroethene	mg/kg	0.058	0.64	16 U	0.033 U	0.0012 J	0.0015 J	0.0069 U
Toluene	mg/kg	12	96	16 U	0.034	0.0057 U	0.00039 J	0.0069 U
trans-1,2-Dichloroethene	mg/kg	0.68	14	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
trans-1,3-Dichloropropene	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Trichloroethene	mg/kg	0.057	0.35	16 U	0.0036 J	0.0057 U	0.0061 U	0.0069 U
Trichlorofluoromethane (CFC-11)	mg/kg	29	540	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 UJ
Trifluorotrichloroethane (Freon 113)	mg/kg	-	-	16 U	0.033 U	0.0057 U	0.0061 U	0.0069 U
Vinyl chloride	mg/kg	0.013	0.027	16 U	0.015 J[a]	0.0057 U	0.0061 U	0.0069 U
Xylenes (total)	mg/kg	170	170	8.1 J	0.13	0.011 U	0.012 U	0.014 U

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:				CDA Sample 13	CDA Sample 14	CDA Sample 15	CDA Sample 16	CDA Sample 17
Sample Date:				7/7/2011	7/7/2011	7/14/2011	7/14/2011	10/5/2011
Sample Depth:				6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS
		2009 IDEM - Default Closure Levels						
Parameters	*Units*	*Residential*	*Industrial*					
		a	*b*					
Semi-volatile Organic Compounds								
2,2'-Oxybis(1-chloropropane) (bis(2-Chloroisopropyl) ether)	mg/kg	0.027	0.26	96 U	1.2 UJ	0.39 U	0.36 U	0.11 U
2,4,5-Trichlorophenol	mg/kg	250	690	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
2,4,6-Trichlorophenol	mg/kg	0.07	0.2	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
2,4-Dichlorophenol	mg/kg	1.1	3	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
2,4-Dimethylphenol	mg/kg	9	25	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
2,4-Dinitrophenol	mg/kg	0.29	0.82	470 U	5.8 UJ	1.9 U	1.7 U	0.35 U
2,4-Dinitrotoluene	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.21 U
2,6-Dinitrotoluene	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.21 U
2-Chloronaphthalene	mg/kg	42	560	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
2-Chlorophenol	mg/kg	0.75	10	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
2-Methylnaphthalene	mg/kg	3.1	42	71 J[ab]	1.2 UJ	0.015 J	0.36 U	0.0071 U
2-Methylphenol	mg/kg	14	39	96 U	1.2 UJ	0.39 U	0.36 U	0.21 U
2-Nitroaniline	mg/kg	0.67	1.9	470 U	5.8 UJ	1.9 U	1.7 U	0.21 U
2-Nitrophenol	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
3&4-Methylphenol	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.42 U
3,3'-Dichlorobenzidine	mg/kg	0.062	0.21	470 U	5.8 UJ	1.9 U	1.7 U	0.11 U
3-Nitroaniline	mg/kg	-	-	470 U	5.8 UJ	1.9 U	1.7 U	0.21 U
4,6-Dinitro-2-methylphenol	mg/kg	-	-	470 U	5.8 UJ	1.9 U	1.7 U	0.16 U
4-Bromophenyl phenyl ether	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
4-Chloro-3-methylphenol	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
4-Chloroaniline	mg/kg	0.97	2.7	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
4-Chlorophenyl phenyl ether	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
4-Nitroaniline	mg/kg	-	-	470 U	5.8 UJ	1.9 U	1.7 U	0.21 U
4-Nitrophenol	mg/kg	-	-	470 U	5.8 UJ	1.9 U	1.7 U	0.35 U
Acenaphthene	mg/kg	130	1800	56 J	1.2 UJ	0.01 J	0.36 U	0.0071 U
Acenaphthylene	mg/kg	18	180	19 J[a]	1.2 UJ	0.39 U	0.36 U	0.0071 U
Acetophenone	mg/kg	-	-	19 U	0.24 UJ	0.078 U	0.073 U	0.11 U
Anthracene	mg/kg	2000	2000	62 J	1.2 UJ	0.025 J	0.36 U	0.0071 U
Atrazine	mg/kg	0.048	0.21	96 U	1.2 UJ	0.39 U	0.36 U	0.21 U
Benzaldehyde	mg/kg	-	-	96 UJ	1.2 UJ	0.39 U	0.36 U	0.11 U
Benzo(a)anthracene	mg/kg	5	15	60 J[ab]	0.019 J	0.11 J	0.36 U	0.0071 U
Benzo(a)pyrene	mg/kg	0.5	1.5	58 J[ab]	1.2 UJ	0.12 J	0.0055 J	0.009
Benzo(b)fluoranthene	mg/kg	5	15	59 J[ab]	1.2 UJ	0.15 J	0.0075 J	0.0071 U
Benzo(g,h,i)perylene	mg/kg	-	-	33 J	1.2 UJ	0.1 J	0.36 U	0.0096
Benzo(k)fluoranthene	mg/kg	50	150	28 J	1.2 UJ	0.061 J	0.36 U	0.0071 U
Biphenyl (1,1-Biphenyl)	mg/kg	-	-	13 J	1.2 UJ	0.39 U	0.36 U	0.053 U
bis(2-Chloroethoxy)methane	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.11 U
bis(2-Chloroethyl)ether	mg/kg	0.0007	0.012	96 U	1.2 UJ	0.39 U	0.36 U	0.11 U
bis(2-Ethylhexyl)phthalate (DEHP)	mg/kg	300	980	96 U	0.11 J	0.39 U	0.36 U	0.053
Butyl benzylphthalate (BBP)	mg/kg	310	310	96 U	1.2 UJ	0.39 U	0.36 U	0.011 J
Caprolactam	mg/kg	-	-	96 U	1.2 UJ	0.39 U	0.36 U	0.35 U
Carbazole	mg/kg	5.9	20	15 J[a]	1.2 UJ	0.39 U	0.36 U	0.053 U
Chrysene	mg/kg	500	1500	55 J	0.027 J	0.12 J	0.36 U	0.0071 U
Dibenz(a,h)anthracene	mg/kg	0.5	1.5	5.7 J[ab]	1.2 UJ	0.021 J	0.36 U	0.0071 U
Dibenzofuran	mg/kg	4.9	65	32 J[a]	1.2 UJ	0.0075 J	0.36 U	0.053 U
Diethyl phthalate	mg/kg	450	840	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Dimethyl phthalate	mg/kg	1100	1100	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Di-n-butylphthalate (DBP)	mg/kg	760	760	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Di-n-octyl phthalate (DnOP)	mg/kg	2000	2000	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Fluoranthene	mg/kg	2000	2000	160	0.03 J	0.21 J	0.0087 J	0.0082
Fluorene	mg/kg	170	2000	48 J	1.2 UJ	0.0089 J	0.36 U	0.0071 U
Hexachlorobenzene	mg/kg	2.2	3.9	96 U	1.2 UJ	0.39 U	0.36 U	0.0071 U

TABLE 6.2

SOIL ANALYTICAL RESULTS SUMMARY
HIMCO SITE
ELKHART, INDIANA

Sample Location:				CDA Sample 13	CDA Sample 14	CDA Sample 15	CDA Sample 16	CDA Sample 17
Sample Date:				7/7/2011	7/7/2011	7/14/2011	7/14/2011	10/5/2011
Sample Depth:				6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS	6- ft BGS
		2009 IDEM - Default Closure Levels						
Parameters	*Units*	*Residential*	*Industrial*					
		a	*b*					
Hexachlorobutadiene	mg/kg	24	66	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Hexachlorocyclopentadiene	mg/kg	400	720	470 U	5.8 UJ	1.9 U	1.7 U	0.35 U
Hexachloroethane	mg/kg	2.8	7.7	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Indeno(1,2,3-cd)pyrene	mg/kg	5	15	$\boxed{30\ J^{ab}}$	1.2 UJ	0.079 J	0.36 U	0.0055 J
Isophorone	mg/kg	5.3	18	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Naphthalene	mg/kg	0.7	170	$\boxed{320^{ab}}$	0.021 J	0.39 U	0.36 U	0.0071 U
Nitrobenzene	mg/kg	0.028	0.34	96 U	1.2 UJ	0.39 U	0.36 U	0.11 U
N-Nitrosodi-n-propylamine	mg/kg	0.0006	0.002	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
N-Nitrosodiphenylamine	mg/kg	9.7	32	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Pentachlorophenol	mg/kg	0.028	0.66	96 U	1.2 UJ	0.39 U	0.36 U	0.16 U
Phenanthrene	mg/kg	13	170	$\boxed{200^{ab}}$	0.03 J	0.11 J	0.36 U	0.0058 J
Phenol	mg/kg	56	160	96 U	1.2 UJ	0.39 U	0.36 U	0.053 U
Pyrene	mg/kg	2000	2000	140	0.053 J	0.18 J	0.0076 J	0.0067 J
Pyridine	mg/kg			-	-	0.77 U	0.72 U	-
Metals								
Aluminum	mg/kg	-	-	4000	4200	2500	3800	1600
Antimony	mg/kg	5.4	37	0.71 J	1.7 J	5.8 U	5.2 U	0.11 J
Arsenic	mg/kg	3.9	5.8	$\boxed{14^{ab}}$	2.9 J	0.72 J	0.66 J	0.96
Barium	mg/kg	1600	10000	77	140	31	9.1 J	21
Beryllium	mg/kg	63	2300	0.16 J	1.7 U	0.48 U	0.43 U	0.079 J
Cadmium	mg/kg	7.5	77	0.23 J	0.24 J	0.073 J	0.43 U	0.27 J
Calcium	mg/kg	-	-	14000	12000	1800	2100	1200
Chromium	mg/kg	-	-	11	7.1	3.4	6.3	3.0
Cobalt	mg/kg	-	-	3.9 J	1.0 J	0.83 J	1.4 J	0.95 J
Copper	mg/kg	920	2900	46	11 U	12	2.8	13
Iron	mg/kg	-	-	22000	2200	1900	3000	3400
Lead	mg/kg	81	230	$\boxed{100^{a}}$	$\boxed{200^{a}}$	14	3.4	25
Magnesium	mg/kg	-	-	4100	1000 J	650	1200	320 J
Manganese	mg/kg	-	-	380	25	32	40	50
Mercury	mg/kg	2.1	32	0.56	0.35 U	0.16	0.094 U	0.091 U
Nickel	mg/kg	950	2700	10	5.5 J	2.4 J	3.8	5.2
Potassium	mg/kg	-	-	300 J	1700 U	95 J	140 J	100 J
Selenium	mg/kg	5.2	53	0.77	2.0	0.48 U	0.43 U	0.46 U
Silver	mg/kg	31	87	1.1 U	3.5 U	0.97 U	0.87 U	0.92 U
Sodium	mg/kg	-	-	83 J	540 J	480 U	430 U	460 U
Thallium	mg/kg	2.8	10	1.1 U	3.5 U	0.97 U	0.87 U	0.92 U
Vanadium	mg/kg	-	-	14	6.2 J	2.9 J	5.2	3.1 J
Zinc	mg/kg	10000	10000	180	48	42	30	51
General Chemistry								
Cyanide (total)	mg/kg	-	-	-	-	0.12 J	0.56 U	-
Percent solids, vol.	%	-	-	-	-	-	-	94

Notes:

a, b	Indiana Department of Environmental Management (IDEM) Risk Integrated System of Closure (RIS(Residential (a) and Industrial (b) Land Use Applications
$\boxed{10}$	Value is greater than the associated criteria indicated.
U	Analyte was positively identified, but was not detected at a value greater than the associated value.
J	Analyte value is estimated.

TABLE 7.1

SEED MIX SUPPLEMENT
HIMCO SITE
ELKHART, INDIANA

Scientific Name	*Common Name*	*Amount (pounds/acre)*
Andropogon gerardii	Big bluestem gress	16
Asclepias syriace	Common milkweed	2
Aster laevis	Smooth blue aster	1
Aster novae-angliae	New England aster	2
Bouteloua curtipendula	Side-oat grama	18
Coreopsis lanceolata	Sand coreopsis	8
Echinacea purpurea	Broad-leaved purple coneflower	8
Elymus canadensis	Canada wild rye	24
Monarda fistulosa	Wild bergamot	1
Panicum Virgatum	Switch grass	4
Penstemon digitalis	Foxglove beard tongue	2
Ratibida pinnata	Yellow coneflower	2
Rudbeckia hirta	Black-eyed susan	8
Schizachyrium scoparium (Andropogon)	Little bluestem	32
Sorghastrum nutans	Indian Grass	16